

UNITED STATES NAVY

Medical News Letter

Vol. 44

Friday, 2 October 1964

No. 7



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Rear Admiral Edward C. Kenney MC USN
Surgeon General

Rear Admiral R. B. Brown MC USN
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William A. Kline, Managing Editor

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Policy

The U.S. Navy Medical News Letter is basically an official Medical Department publication inviting the attention of officers of the Medical Department of the Regular Navy and Naval Reserve to timely up-to-date items of official and professional interest relative to medicine, dentistry, and allied sciences. The amount of information used is only that necessary to inform adequately officers of the Medical Department of the existence and source of such information. The items used are neither intended to be, nor are they, sus-

ceptible to use by any officer as a substitute for any item or article in its original form. All readers of the News Letter are urged to obtain the original of those items of particular interest to the individual.

Change of Address

Please forward changes of address for the News Letter to: Commanding Officer, U.S. Naval Medical School, National Naval Medical Center, Bethesda, Maryland 20014, giving full name, rank, corps, and old and new addresses.

FRONT COVER: USS ENTERPRISE, CVA(N)-65, USS LONG BEACH, CG(N)-9, and USS BAINBRIDGE, DLG(N)-25 in formation in Mediterranean Sea. Official U.S. Navy photograph by LT R. R. Conger, USN, officially released.

Members of big E's crew spell out Professor Albert Einstein's mass-energy equation, $E=mc^2$, a practical concept which has literally launched this fabulous era of atomic energy. This energy is the source of ENTERPRISE'S propulsion power—eight nuclear reactors generating super-heated steam to drive her great turbines and propellers.—Editor

The issuance of this publication approved by the Secretary of the Navy on 4 May 1964.

FACT SHEET ON OPERATION SEA ORBIT*

Operation SEA ORBIT is scheduled to complete its round-the-world cruise on 5 October 1964, proving conclusively the feasibility of operating nuclear surface ships over great distances on a self-sustaining basis.

SEA ORBIT is the first world cruise of surface nuclear ships. The task force is made up of USS ENTERPRISE (CVAN-65), USS LONG BEACH (CLGN-9), and USS BAINBRIDGE (DLGN-25). (See front cover of this issue of Medical News Letter.)

The world cruise has had a dual mission. It has offered practical experience in operation of nuclear-powered warships independent of support ships, a feat impractical for conventionally powered ships. Equally important, and immediately evident, has been the opportunity to win friends in areas not frequently visited by U. S. Navy ships, and to show the world an all nuclear element of the world's greatest power for peace.

Two other world circumnavigations were made by U. S. nuclear vessels, both submarines. In 1958, USS SKATE (SSN-578) circled the earth in 50 minutes—on the 12-mile circle of the North Pole. In 1960, USS TRITON (SSN-586) followed Magellan's route around the world. TRITON remained submerged for the whole voyage.

In addition to the underway visits held along both coasts of Africa, and a port visit to Karachi, Pakistan, the week of August 22nd, dignitaries from the following cities and nations were scheduled to visit ships of the Task Force:

Fremantle, Australia	August 31
Melbourne, Australia	September 3
Sydney, Australia	September 4
Wellington, New Zealand	September 9
Buenos Aires, Argentina,	
Montevideo, Uruguay	September 21
Sao Paulo, Brazil	September 23
Rio De Janiero, Brazil	September 25
Recife, Brazil	September 27

In-port visits were planned as follows:

BAINBRIDGE in port at Fremantle, Australia, August 21-September 2

LONG BEACH in port at Melbourne, Australia, September 3-5

ENTERPRISE in port at Sydney, Australia, September 4-7

LONG BEACH/BAINBRIDGE in port at Wellington, New Zealand, September 8-9

Task Force ONE in port at Rio De Janiero, Brazil, September 23-25

Task Force One departed Gibraltar on July 31, under the command of RADM Bernard M. Streat USN, with an itinerary which included underway visits along both coasts of Africa, and underway and in-port of South America.

Dignitaries from nations along the first leg of Task Force One's route were flown by ENTERPRISE aircraft to the nuclear carrier to be shown the capabilities of the Task Force. Aircraft from ENTERPRISE's carrier air wing flew inland for aerial demonstrations for public viewing.

Government officials from Morocco, Senegal, Liberia, Ivory Coast, the Union of South Africa, and Kenya, were received on board the nuclear flagship, and the response was enthusiastic.

USS ENTERPRISE, the flagship of Task Force ONE, was commissioned on November 25, 1961. Built by the Newport News Shipbuilding and Dry Dock Company, Newport News, Virginia, the 1123 ft carrier can launch one of its 100 aircraft each 15 seconds. Its eight nuclear reactors can drive the 85,000 ton ship in excess of 25 knots. ENTERPRISE is commanded by CAPT Frederick H. Michaelis USN, of Kansas City, Missouri, and has a crew of 400 officers, and 4,500 enlisted men with the air wing embarked.

USS LONG BEACH was the world's first nuclear powered surface warship to be placed in commission—September 9, 1961. LONG BEACH was built by Bethlehem Steel, Quincy, Massachusetts. The 721 ft, 16,600 ton cruiser is equipped with TALOS long-range surface to air missiles. TERRIER medium range surface to air missiles, and ASROC, a surface to underwater anti-submarine warfare weapon. LONG BEACH is powered by two nuclear power plants. Her crew, commanded by CAPT Frank H. Price USN, of Bethesda, Md., consists of 60 officers and 900 enlisted men.

USS BAINBRIDGE, was commissioned on October 6, 1962. She was also built by Bethlehem Steel at Quincy. The 564 ft, 8,400 ton frigate is armed with TERRIER surface to air missiles and ASROC. BAINBRIDGE's two nuclear reactors can propel it many times around the world without additional fuel. CAPT Hal C. Castle USN, of Peoria, Illinois, commands BAINBRIDGE's 34 officers and 460 enlisted men.

Aircraft on board ENTERPRISE are attached to Carrier Air Wing SIX, CDR T. L. Nielson, of Evanston, Wyoming, commanding. Carrier Air Wing SIX, composed of Fighter Squadrons (VF) 33 and 102; Light Attack Squadrons (VA) 64, 65, 66, and 76; Heavy Attack Squadron (VAH) 7; In addition, small detachments from Light Photo Squadron (VFP) 62; All Weather Early Warning Squadron (VAW) 12; Helicopter Squadron (HU) 2, and Carrier Transport

* News Release, Office of Assistant Secretary of Defense (Public Affairs), Washington, D. C. 20301, 22 August 1964.

Squadron (VRC 40) are embarked. Aircraft in Carrier Air Wing SIX include the F-8 CRUSADER, the F-4B PHANTOM II, the A-4E SKYHAWK, the A-1E SKY-RAIDER, the A-5 VIGILANTE, the RF-8A CRUSADER the E-1B TRACER, and the UH-2A SEA-SPRITE (helicopter). These aircraft represent some of

the world's newest aircraft, and embarked on ENTERPRISE offer maximum versatility enabling ENTERPRISE and her Air Wing to accomplish a variety of tasks. Task Force ONE is scheduled to arrive in Norfolk, Va., on October 5, 1964, concluding the two month operational evaluation and good will circumnavigation of the world.

FROSTBITE

*By Bradford Washburn
Director, Museum of Science, Boston, Mass.*

*(This article is reproduced from *The Polar Record*, Vol II, No. 75 (September 1963) by kind permission of the author and the editor of that journal. It originally appeared in the *American Alpine Journal*, 13:1-26, June 1962, and was reproduced, in slightly different form, in the *New England Journal of Medicine* 266:974-989, May 10, 1962. This article is a slightly shorter version containing subject matter from both originals. Appreciation is extended to Mr. Washburn for permission to publish this article, in the *Medical News Letter*. Because of its length, three installments will be required.—Editor)*

INTRODUCTION

Very significant progress has been made during the last decade towards an understanding of the nature of frostbite. Furthermore, recommended treatment today is so drastically different from the generally accepted practice of only a few years ago that it seems most important for modern methods to be understood and applied as widely and rapidly as possible. Although this article has been written primarily for those interested in climbing and exploring in high mountains, it is hoped that the data in it may prove as useful to the lowland traveller or outdoor labourer as to the mountaineer.

Frostbite can usually be prevented by experienced leadership, good physical condition and adequate food and equipment, intelligently used. But, occasionally, in extreme circumstances such as those surrounding an accident, an emergency bivouac or an unexpected storm, it may prove very difficult to avoid. For example, a deep cut in the hand of a member of the well-equipped and experienced 1932 Minya Konka expedition ultimately resulted in a very serious case of frostbitten feet.

COLD CONTACT

The type and duration of contact are the two most important factors in determining the extent of frostbite injury. Touching cold wood or fabrics is not nearly as dangerous as coming in direct contact with metal, particularly if one's hands are wet or even damp. In the latter case, the skin usually is instantly cemented to the cold metal and is torn off when the hand is removed. This is the reason why silk or cotton gloves are often worn by surveyors, scientists and photographers who require manual dexterity while handling extremely cold objects, not because these gloves have any insulative

value of consequence, but because they prevent direct contact with the cold metal, which is such an excellent conductor.

Air itself is a very poor thermal conductor. Cold air alone is not nearly as dangerous a freezing factor as a combination of wind and cold. The chilling effect of a temperature of -7°C (20°F) combined with a 45-mile wind is identical to that of a -40°C (-40°F) temperature coupled with a 2-mile breeze. Wind chill is slightly less at high altitudes, because of reduced air density (Falkowski and Hastings, 1958).

Probably the most violent and rapid cases of freezing ever reported in medical literature were those related to the operations of the United States Army Air Force over Germany in World War II (Davis and others, 1943). At one time during the winter of 1943 the frostbite injuries of the United States heavy-bomber crews were greater than all their other casualties combined. Most of these occurred in B-17 and B-24 aircraft flying at altitudes between 25000 and 35000 ft in temperatures of -32° to -43°C . When attacked, the only way that the "waist gunners" of these aircraft could operate their machine guns was to open the large "waist ports", through which the guns were fired, directly into the frigid air, rushing by at about 200 miles per hour and swirling around the interior of the aircraft.

Starting their work wearing heavy mittens and bulky sheepskin clothing, the gunners often threw away their gloves and even their jackets, working the guns bare-handed to assure better dexterity—which they felt necessary to save their lives. Terrible cases of frostbite resulted from these exposures, some of which lasted for only a minute or two, but which fulfilled perfectly all the requirements for acute contact: fear (even panic),

exhaustion (the German attacks were often adroitly planned at the end of long flights on the return trip), hypoxia, and inadequate nourishment during many hours of tension, followed by tight gripping of a frigid solid object—often bare metal. Furthermore, the barn-like interior of the uninsulated fuselages of these aircraft made rewarming slow, if not virtually impossible. This situation probably will never again be duplicated, since all military aircraft are now heated and pressurized and their gunners no longer operate in the open. The frigid temperature of outer space can never affect air crews directly, for human beings cannot exist outside a pressurized cabin at heights much above 40000 ft except briefly during free-fall parachute descents. At altitudes above 63000 ft human beings cannot exist at all unless in a pressurized suit or cabin—for above this height human blood boils at body temperature.

Because many of the most serious cases of frostbite have originated at high altitudes—both on the ground and in the air—it has long been assumed by laymen that changes took place in the blood progressively at greater altitudes that made the patient more and more prone to frostbite. Exhaustive studies, however, indicate that reduction of atmospheric pressure has little, if any, effect on susceptibility to frostbite as a result of changes in the make-up of the blood. The greatly increased concentration of red cells resulting from an extended stay at high altitude does not make the blood more viscous, nor does it slow down capillary circulation or have any other presently known bearing on cold injury.

There is one part of the body, however, where the lowering of pressure has an immediate and significant effect, one that grows increasingly serious above about 10000 ft; this is the brain. Hypoxia * brings about an insidious reduction in reasoning powers, with a tendency to make one lazy, careless, indecisive and lacking in the endurance, insight and judgement normally encountered at sea level; this is all the more dangerous because each member of the party always sees these manifestations clearly in others but is solidly convinced that he alone is not being affected.

Life itself at high altitude involves many basic changes, all of which contribute to increasing the danger of frostbite. Shelter is apt to become less and less comfortable the higher one climbs. Cold steadily increases, as do the wind and the violence of storms. Loss of sleep, less adequate diet and finicky digestion, dehydration and greater nervous tension all contribute to a general level of bodily fatigue that is far above that experienced in the lowlands. One of the fundamental defences against frostbite is known to be a healthy body—yet a great number of factors inevitably related to high-altitude life are constantly whittling away at the well-being of even the toughest person.

As the altitude increases and the oxygen supply is

* Hypoxia is a disturbance of bodily function resulting from a deficiency of oxygen. This is sometimes confused with anoxia, a term that now means a total absence of oxygen.

inadequate for normal breathing to satisfy the body's needs, the rate of exercise must be very carefully regulated. Huge quantities of body heat can be lost through the lungs by panting and over-exertion in extreme cold (Pugh, 1953). It is futile to pile layers of adequate clothing on the outside of one's body, only to have the major heat loss take place from within. Panting, too, in itself, can result in serious fatigue unless held in check, because even the muscles that operate the breathing have their own oxygen requirement. The harder they work, the more they use.

One must remember that the body needs exactly the same amount of oxygen to do a given job at any altitude but the lungs must process more and more air to obtain this oxygen the higher one climbs. This purely mechanical process is always very carefully regulated by experienced climbers. Excessive activity in extreme cold will not only exhaust the body but chill it to the core at the same time.

Probably the two most important basic factors in the prevention of cold injury are the heat-producing capacity of the body and the effectiveness of measures to conserve heat, once it has been produced. It is also clear that the less heat the body is able to produce, the more carefully one must protect this vital resource.

At higher altitudes the natural protective mechanism of shivering is impaired, and heat production during rest can therefore be seriously reduced in a crisis. If a climber is unable to exercise in extreme cold because of injury or exhaustion, it actually can become impossible for the body to retain an adequate level of heat production to meet the requirements of the situation. If this heat output falls below the danger point, the body then reduces the blood flow to its surface and extremities in a desperate effort to retain normal temperature at its core. In such a situation, no amount of insulation can prevent frostbite—and nothing but vigorous warming from an external heat source and, if possible, administration of oxygen can avert serious results.

It is interesting that since oxygen has been employed extensively in High Himalayan mountaineering almost no frostbite has been encountered by the personnel actually using it. Conversely, during the 1960-61 Makalu expedition, almost everyone who climbed above 24,500 ft without oxygen suffered frostbite in some degree—despite the fact that one of the prime objectives of this expedition was the study of acclimatization (Marmet and MacFarland, 1960).

As the altitude increases, therefore, the danger of being frostbitten progressively increases. The margin of safety at the summit of Mount Everest is very slim indeed, except under extremely favourable conditions of both the weather and the physical well-being of the climbers.

It is almost unnecessary to emphasize the great importance of an adequate diet for the production of body heat at all altitudes. Cold weather definitely increases caloric needs, and variations in diet can have equally

definite effects on tolerance of cold (Mitchell and Edman, 1951).

In cold-weather camping, particularly at high altitudes, cooking, dishwashing, thawing of food and melting of water present a long, tedious project at best. Frequently, it is such a struggle to prepare a hot meal that one is tempted to get along with the minimum of food and water, particularly in bad weather. In addition, because of the miseries of backpacking, the higher one climbs, the more reduced, compressed, uninteresting and unappetizing food is apt to become, unless the party is patient and stubborn in its efforts to carry good food to all camps and unless the food itself is selected and prepared very carefully. Many high-altitude and stormy-camp meals would be close to repulsive if served in a warm dining room at sea-level—and this all goes on at a time when the need for plenty of good food is of vital importance.

There is no better investment in the well-being, safety and efficiency of a party than appetizing food, plenty of it, well prepared.

One should drink much more liquid than usual at higher altitudes to compensate for losses through the lungs as a result of breathing unusually large quantities of dry air. This means regularly drinking a good deal more liquid than seems necessary at reasonably frequent intervals in camp and on the trail; just what seems enough is not sufficient.

At low altitudes, diet in cold weather should tend heavily towards fats, which can be tolerated in amazing quantities by men doing heavy exercise in extreme cold. Carbohydrates rate next in importance and proteins follow a poor third. Few common foods represent pure examples of any of these three types. For instance, stews and hashes are usually a mixture of all three, many cereals combine both carbohydrates and proteins, and all meats are a combination of both protein and fat. The following list may be of help in indicating the basic composition of some of the common foods. The first letter indicates the dominant component. Small letters indicate a small fraction of the overall composition. Hyphens indicate a trace or absence.

Bacon	Fp-	Flour (White)	Cp-
Beans (dried)	CPf	Fruits	Cp-
Beef (chipped)	Pf-	Ham	FP-
Biscuits (pilot)	Cp-	Honey	C--
Bread (white)	Cp-	James & Jellies	C--
Butter	F--	Macaroni	Cp-
Dates	Cp-	Meats (average	
Candies (hard)	C--	fat content)	PF-
Cereals (oatmeal)	Cp-	Milk (whole)	PFc
Cheese	FP	Milk (non-fat dried)	Pc-
Chicken	Pf-	Nuts	FPC
Chocolate	FC-	Most pemmican	FP-
Eggs (whole)	PF-	Potatoes (dried)	C--
Fish	PF-	Soups (dried thick)	C--
Fish (packed in oil)	FP-	Sugar (granulated)	C--

As altitude increases above 10000 ft, carbohydrates

should be favoured, with fats and proteins following in that order. Sweets of all sorts are as appetizing in cold weather at high altitude as fats are in the cold-weather trail diet in the lowlands.

Although fats are a great heat producer at any altitude, many climbers seem to find them difficult to digest above about 14000 ft. They should not be heavily relied upon above that height unless it is known from previous experience that all members of the party like them and can tolerate them. The failure of the magnificent Parker-Browne assault on Mount McKinley in 1912 was the direct result of its total dependence on a very fatty pemmican diet. This had proved a great success below 14000 ft but turned out to be totally repulsive to the entire party at its 16400 ft camp.

Losses of body heat can be tremendous in cold weather at high altitude. Huge caloric input is needed to offset them, and it is vitally important not to waste effort backpacking any food to high camps that cannot be easily and pleasantly converted into useful energy. It should not be forgotten that a pressure cooker can be a great asset in making rapidly available at high altitudes all sorts of excellent foods that until recent years were considered uncookable above 10000 ft. Frozen fresh fruits, vegetables and meats, where practical to use in the field, can also produce miracles in both the morale and physical well-being of a party operating under rough conditions of weather and altitude.

Changes in the circumstances surrounding frostbite injury can result in substantial difference in the amount of damage done under nearly identical climatic conditions. Frostbite is rarely experienced by a healthy person standing still and adequately clothed (like a sentry). It almost always seems to be related to other factors such as fatigue, a sudden storm or an accident—or combinations of them. In civilization, intoxication is a well known and frequent forerunner of frostbite.

Injury to any part of the body, combined with a certain amount of shock and resultant fear and panic, can introduce serious frostbite into an accident situation in which the climatic conditions alone would not have caused any trouble to seasoned, uninjured persons. If the members of a party are already exhausted at the time that an accident occurs, both shock and frostbite can be much more serious. It is also exceedingly difficult to rewarm and maintain the general body warmth of a hypoxic injured patient—and advanced general body cooling can be a tremendous factor in the onset of both shock and frostbite. A striking example of this related in a recent letter regarding the 1961 crisis on Makalu, a 27790 ft. Himalayan peak immediately adjacent to Mount Everest: "Frostbite doesn't occur very often unless there is overall heat deficit in addition to cooling of the extremity. Take Peter Mulgrew's case. He had a pulmonary thrombosis at 27450 ft. During the ten days it took to evacuate him to lower altitudes and then to Katmandu by helicopter, he was completely inactive and had a minimal heat production—probably

basal or even less. On top of this he had some degree of shock much of the time, which impaired his peripheral circulation considerably. Therefore, although he had warm socks, down booties and a good double sleeping bag, he was severely frostbitten and lost both legs below the knee, as well as parts of some fingers. This was the result of low heat production, not faulty clothing" (Nevison, 1961).

Because impaired local circulation is the primary cause of frostbite, an effort should be made at any altitude to avoid anything that is known to have even a mildly adverse effect on normal peripheral circulation, in particular tobacco and alcohol. Smoking results in varying degrees of spasm in the blood vessels throughout the entire body, thus reducing normal peripheral circulation and the flow of oxygen and nourishment to the tissues, at a time when both are badly needed. On the other hand, alcohol results in vascular dilatation and an increased flow of blood at the surface of the body. This blood is unduly chilled and, as it returns to the heart and lungs, may lower the temperature of the whole body significantly. Although the use of alcohol (even in moderation) is not recommended at any time on the trail—particularly in an emergency—smoking does not seem to have any direct bearing on frostbite, if one does not smoke actually at the time when the danger of frostbite exists or while it is being treated. Habitual heavy smokers do not appear to be more subject to frostbite than others.

It is well to remember that deep, loose snow can contribute to frozen feet in a most unexpected manner. While on equipment tests near the summit of Mount McKinley some years ago, members of our party found it extremely difficult to keep their feet warm, although it was clear and sunny and the air temperature was warm, -17° or -15°C (2° or 3°F), with, very little wind. The next day, one of the party dropped a thermometer in the loose snow at our high camp and took a minute or more to relocate it. The air temperature was -18°C . The thermometer registered -25°C (-14°F) a foot below the surface. The temperature beneath deep snow is frequently very different from that on the surface. Feet should be dressed for the temperature where they are—not where the head is. While one is resting on the trail or at lunch, it is usually wise to get one's feet up into the sun in a sheltered spot. Often, however, in windy weather the temperature in the shelter below the surface of the snow is much warmer than on top, even in the sunlight. By using his head constantly in cold weather the climber can protect his body from a very large amount of unnecessary stress and strain.

Previous experience with frostbite frequently results in a longterm reduction in anyone's tolerance to cold in the injured part. Conversely, whether there is or is not such a thing as bona fide physiological adaptation to cold has been an extremely controversial matter for a long time. There is not the slightest doubt that Eskimos, Tibetans and other natives in cold, rugged climates

"feel" cold much less than "outsiders"; Balti porters, for example, can walk barefoot for hours through the Himalayan snow, carrying heavy loads at 13000 to 16000 ft, without visible injury or discomfort. Their hardy physical well-being and tough, weather-beaten faces, hands and feet certainly seem to resist cold more than those who do not live as they do. They obviously tolerate cold better than those who live in temperate and tropical climates (Yoshimura and others, 1960).

However, many medical experts have long insisted that this alleged "resistance" is really no more than the result of lengthy experience in Arctic survival and day-to-day living, under conditions far worse than those encountered outside of their homeland. It is further agreed—and warned—that Eskimos, even though they do not feel cold as fast or as much as outsiders, will freeze just as fast and just as badly as others, given the same actual contact situation.

Recently, a more and more serious attack is being made on this interesting subject by a number of competent investigators who believe that under certain circumstances there may really be such a thing as cold adaptation. However, even if this research ultimately meets with acknowledged success, it may prove of little but academic value to all but Eskimos and Tibetan climbers. The basic reasons why most seasoned outdoorsmen are not frostbitten are that they tend to be in good physical condition and that they know how to act and dress to prevent it.

Frostbite can result in serious and crippling injury, and even mild exposure should be avoided with great care. (To be continued.)

** "It (this article) has considerable direct reference to specific problems of high altitude as well as extreme cold. However, since the currently accepted treatment of frostbite and the ways to avoid it are identical for all places and altitudes, it is believed that the facts and advice given should be of general value and interest to both doctors and laymen alike. The author has been to Alaska 23 times, both summer and winter, and he has been an expert consultant on cold-climate equipment to both the United States Air Force and the Army.

It is evident that he practices what he preaches, for only 1 slight case of frostbite has occurred among all the personnel involved in his total of 15 major forays into the high mountains of Alaska. Three of these have been ascents of Mount McKinley (20320 ft) and have been carried out under full winter conditions. Well over 100 different people have participated in this field work, much of which has been directed toward the preparation of a new and detailed map of the Mount McKinley region, published in April, 1961."

The above comment ** and the following editorial appeared in the same issue of the New England Journal of Medicine as Mr. Washburn's article:

"TO WALK ON FROZEN TOES"

Ice-age man was obviously aware of the serious nature of injuries produced by cold, and satisfactory methods for their prevention was a prerequisite to his, as well as to contemporary man's survival. It is interesting that in primitive people living in northern climates serious cold injury seldom develops under ordinary conditions.

Frostbite was regarded as negligence and was an offense punishable by death in the German and Russian armies during World War II. Relatively few cases of frostbite occurred among these soldiers, in marked contrast to the very high incidence among American troops exposed under identical conditions, insufficient awareness of the basic principles for the prevention of cold injury undoubtedly having been a major factor in causing this difference.

Modern man incurs a greater risk of frostbite than primitive man because of such necessities of life as loading cameras, handling gasoline and operating delicate instruments under conditions of extreme cold and frequently high altitudes. The combination of increased susceptibility and decreased awareness of the hazards and methods for prevention of cold injury is making frostbite an increasingly common disease among people accustomed to high standards of living.

Until recent years there has been no controlled experimental scientific basis for the treatment of frostbite. Basic conservatism and the belief founded in antiquity that marked differences in temperature were to be avoided led to the general acceptance of gradual rewarming as being almost axiomatic in the treatment of frostbite. Such beliefs are so deeply ingrained in the minds of professional persons and laymen alike that they are difficult to eradicate. An informal cafeteria poll of physicians of all specialties shows that there is still an approximately 3:1 preference for gradual versus rapid

rewarming of frozen extremities. When these physicians were asked the experimental basis for their preference, the majority reflected and said they did not know.

The armed forces have expended considerable sums of money for study of the most effective means for thawing frozen parts, and the experimental evidence and clinical results of rapid rewarming in decreasing the amount of permanent tissue loss of frozen extremities are now clear. The results of these studies should be widely disseminated.

Mr. Washburn has discussed the subject of frostbite in a most interesting and thorough fashion. His article which appears elsewhere in this issue of the Journal, is obviously the product of great personal experience as well as intensive study of the bitterly learned lessons and personal tragedies of many others.

Frostbite is one of the emergency conditions, such as drowning, acute respiratory obstruction, precipitous labor and hemorrhage, that any physician may be called upon to treat at any time. Treatment must frequently be undertaken without recourse to the library or consultation with experts. It is strongly recommended that every physician and medical student familiarize himself with the principles discussed in Mr. Washburn's important paper, mindful of Edwin A. Robinson's poem "New England.":

*Here where the wind is always north-north-east
And children learn to walk on frozen toes.*

If carried out in suitable conditions, physical activity is unlikely to aggravate the condition of the patient with heart disease, and indeed will probably be of benefit to him. If he is in regular employment, however, he may have to cut down such leisure activities as gardening and odd jobs about the house.—WHO Chronicle 18(6): 218, July 1964.

In some parts of India, it has been estimated, one child in 800 under 5 years of age dies of measles or its complications, and the situation is thought to be much worse in parts of Africa. Even in the developed countries measles is now suspected of being considerably more serious than had generally been believed. Safe and effective prophylactic measures against this disease, which practically every child contracts, are clearly needed. Various types of measles vaccine are now being studied in a number of countries.—WHO Chronicle, 18(3): 81, March 1964.

The available figures suggest a world-wide decline in maternal mortality between 1950 and 1960. The greatest improvement was observed in the figures for death from toxæmias of pregnancy and the puerperium and from complications of pregnancy, childbirth, and the puerperium, which together accounted for more than 50% of maternal deaths. Abortion with or without

sepsis, which accounted for about 10% of such deaths, showed an increase in some countries.—WHO Chronicle, 18(3): 100, March 1964.

Prompt Identification of Food Poison. Use of gel diffusion to identify the specific staphylococcal toxin responsible for the majority of food poisoning outbreaks in the United States was announced in November 1963 by the U. S. Food and Drug Administration, simultaneously with similar reports by the Public Health Service. The gel double diffusion test, the goal of 15 years' research, employs a serologic method. Minute quantities of Enterotoxin A can be detected through the use of the antibody produced in rabbits by injection of the enterotoxin.

In the past, it has been necessary to isolate the bacteria from suspected foods and demonstrate toxicity by feeding monkeys or injecting cats. These tests were time consuming and not always reliable because animals vary in susceptibility to toxins.

In the FDA test, the suspected food sample is placed in an electric blender and thoroughly homogenized. A special glass column containing certain chemicals is used to separate the toxin from the food substances. The toxin is removed from the chemicals and concentrated.—Public Health Reports 79(2): 179, February 1964.

UROLOGIC DIAGNOSIS

B. G. Clarke MD, Associate Professor of Urology, Tufts University School of Medicine and J. Hartwell Harrison MD, Clinical Professor of Genito-Urinary Surgery, Harvard Medical School. Reprinted by permission of the authors from "Diseases of the Urinary and Genital Organs" (A Review and Bibliography)—pps 8-12, Boston, Mass., 1960.*

The Abdominal X-Ray

The plain film of the abdomen or "K. U. B." (kidney-ureter-bladder) x-ray is the basic study in all radiography of the urinary tract. It is often diagnostic. It is an essential preliminary study before contrast radiography. The plain film is studied for opacities due to calculi or foreign bodies; for soft tissue masses; for abnormal organ contours; for abnormal gas patterns in the bowel, and for skeletal abnormalities such as fractures, osteoporoses and metastatic lesions.

In plain abdominal x-rays of good quality one usually sees not only skeletal shadows, bowel patterns, and abnormal calcifications but also the outlines of the kidneys, liver, spleen, psoas muscles, lateral abdominal wall and peritoneum as well as visceral tumors if they exist. In the upright or lateral positions it is also possible to demonstrate, in cases of ruptured viscera, intraperitoneal free air or in cases of intestinal obstruction, dilated bowel loops with fluid levels.

Value of Plain Film in Renal Mass Lesions (Tumors and Cysts).
Ettinger, A.; and Elkin, M.: Radiol 62: 372-382, March 1954.

Intravenous Pyelograms

Intravenous pyelograms, or excretory urograms, as they are also called, are made by injecting a radio-paque organic iodide solution intravenously. This is selectively excreted by the kidney and concentrated in the urine within a few minutes by a combination of glomerular filtration and tubular excretory mechanisms. The renal cortex is rendered visible by faint opacification, while the calyces, pelvis, ureters and bladder become visible as they fill with iodide-containing urine. This constitutes a physiologic and visual study of the upper, mid and lower urinary tracts.

X-rays made at timed intervals permit estimation of renal excretory function, study of the outlines of the renal cortex, and roentgen visualization of the ureters and bladder. Comparison of films usually demonstrates the serial phases of ureteral peristalsis. As the bladder fills with radiopaque urine its pathology may be seen although exact diagnosis of bladder lesions requires cystoscopy. A film made after voiding shows whether or not there is persistent residual urine.

Intravenous pyelograms or excretory urograms are useful in nearly all cases of suspected renal pathology.

Contrast media are not usually excreted in diagnostic concentration if blood urea nitrogen exceeds 50 mgm per cent. Intravenous pyelograms should not be made if a patient is known to be sensitive to iodides, nor in individuals with a history of asthma. Severe and occasionally fatal anaphylactoid reactions can occur. The death rate from such complications is about 1 in every 120,000 intravenous pyelograms. Excretory urography should never be performed indiscriminately. Preliminary intradermal or ophthalmic tests for sensitivity do not assure that reactions will not occur. A test dose of 1 cc is given intravenously and if no reaction occurs 19-20 cc is slowly injected over a period of 5 to 10 minutes. Equipment for resuscitation, instantly available, should include intravenous injections of adrenalin and antihistamine, an infusion set with plasma expander in the event of peripheral vascular collapse, laryngoscope, endotracheal tube and a tracheostomy set to be used if there is evidence of respiratory obstruction due to laryngeal angioneurotic edema.

Comparative Studies of Urographic Media. Culp, D. A.; Van Epps, E. F.; and Edwards, C. N.: J Urol 78: 493-495, October 1957.

Evaluation of Contrast Media for Excretory Urography. Utz, D. C.; and Thompson, G. J.: Proc Staff Meet Mayo Clin 33: 75-80, February 19, 1958.

Reactions Associated with Intravenous Urography: Historical and Statistical Review. Pendergrass, H. P.; Tondreau, R. L.; Pendergrass, E. P.; Ritchie, D. J.; and Others. Radiology 71: 1, 1958.

The Limitations of the Intravenous Pyelogram as a Test of Renal Function. Hoffman, W. W.; and Grayhack, J. T. Surg, Gyn, & Obst 110: 503-509, April 1960.

Cystoscopy and Retrograde Pyelography

Cystoscopes and urethrosopes are delicate telescopic instruments introduced perurethrally which provide a magnified view of the interior of the bladder and urethra. The essential components are a delicate metal sheath which is lighted at its tip, a magnifying lens system, and an irrigating system used to distend the organs with clear, sterile fluid.

Many variations of such equipment are available. It is possible, using these instruments, to perform accurate diagnostic inspection of all parts of the lower urinary tract, to make biopsies, to intubate (catheterize) the ureters, to remove or electrocoagulate bladder cancers, to resect prostatic hypertrophy, to excise prostatic bars and congenital prostatic valves, to incise strictures of the ureteral orifices, to extract stones from the ureters and to crush and evacuate stones from the bladder.

* For further information regarding the authors and their publication, see the Medical News Letter 44(3): 13, August 7, 1964.

With the aid of the cystoscope, delicate catheters may be inserted into the ureters or renal pelvis. These may be used to collect urine for cultures, for microscopic and chemical analysis and for separate functional studies. The retrograde injection of nontoxic and nonirritant organic iodide solutions permits visualization of the renal collecting system or ureters. Retrograde pyelography is used when intravenous studies are contraindicated or when they fail to yield x-rays of diagnostic quality.

Clinical Cystoscopy. McCrea, L. E., Phila., F. A. Davis, 1940 (2 vols)

Cystograms, Cystourethrograms

A cystogram is a contrast study of the bladder made with intravenously injected media or by retrograde injection of air or iodide solution. The cystourethrogram is an extension of this technic. The urethra (as well as the bladder) is delineated by making an x-ray during injection of a column of radiopaque, nontoxic contrast substance and also, again, while the patient voids.

Radiologic Diagnosis of the Lower Urinary Tract. Beard, D. E.; Goodyear, W. E.; and Weens, H. W.: Springfield, Ill., Charles C. Thomas, Publishers, 1952.

Retroperitoneal Pneumograms

When adrenal or retroperitoneal tumors are suspected and cannot be demonstrated by plain radiography, they may often be outlined by gas contrast. This is accomplished by presacral injection of carbon dioxide (the safest medium if it should enter the circulation) into the retroperitoneal areolar tissue. Because of the danger of gas embolisms which can be fatal, the examination must be undertaken with circumspection.

Presacral Retroperitoneal Pneumography Utilizing Carbon Dioxide: Further Experiences and Improved Technique. Landes, R. R.; and Ransom, C. L.: *J Urol* 82: 670-673, December 1959.

Renal Angiography

Angiograms of the renal vessels can be made by translumbar intraaortic needle injection of organic iodide solution or by introducing a catheter, for the same purpose, through the femoral vessels. They are particularly indicated in the study of renal vasculature in cases of hypertension of suspected renal origin. They are also indicated, occasionally, in the study of other types of renal pathology.

Renal angiography has the disadvantage that rarely but occasionally the concentration of the contrast medium is sufficiently great in the kidney vessels to cause fatal tubular necrosis; in the mesenteric vessels to cause fatal mesenteric thrombosis; and in the vertebral circulation to cause toxic myelitis and permanent paraplegia.

Aortography. Its Application in Urological and Some Other Conditions. Stirling, W. R.: Edinburgh and London, E. & P. Livingstone, Ltd. 1957, pp 292.

Complications of Aortography. Crawford, E. S.; Beall, A. C.; Moyer, J. H.; and DeBakey, M.: *Surg, Gyno, and Obst* 104: 129-141, February 1957.

PATHOGENESIS AND TREATMENT OF URINARY INFECTION

Pathogenesis

Bacteria may enter the urinary tract via the bloodstream (hematogenous infection), the lymphatics, or the urethra (ascending infection). Renal tissue damaged by previous infections, by trauma, or by chronic urinary obstruction is peculiarly susceptible to infection. Foreign bodies (stones, catheters) and urinary retention due to neurogenic or mechanical obstruction likewise favor the development of infection and hinder its disappearance. On account of these factors, any urinary infection which persists or recurs demands not only accurate bacteriologic study of the urine but pyelographic or often cystourethroscopic study to identify mechanical or obstructive abnormalities the correction of which is essential before antibacterial agents can be effective. Unimpeded ureteral peristalsis and normal reflex emptying of the urinary bladder must be restored if treatment of infection is to succeed.

Chronic Pyelonephritis. Hayman, J. M. Jr.: *Bull Tufts-New England Med Ctr* 1: 65-71, April-June 1955.

Clinical Features of the Contracted Kidney Due to Pyelonephritis. Longcope, W. T., and Winkenwerder, W. N.: *Bull Johns Hopkins Hos* 53: 255-287, November 1933.

Bacteriuria and Diagnosis of Infections of Urinary Tract: with Observations on Use of Methionine as Urinary Antiseptic. Kass, E. H. *Arch Int Med* 100: 709-714, November 1957.

Pyelonephritis. Kleeman, C. R.; Hewitt, W. L.; and Guze, L. B.: *Medicine* 39: 3-116, February 1960.

Chronic Bilateral Pyelonephritis: its Origin and Its Association with Hypertension, Longcope, W. T.: *Ann Int Med* 11: 149-163, July 1937.

Role of Ureter in Pathogenesis of Ascending Pyelonephritis. Talbot, H. S.: *JAMA* 168: 1595-1603, November 1958.

Types of Infection

Cystitis. In certain situations ascending urinary infections will usually remain localized in the urethra and bladder without involving the kidneys. Notable instances are cystitis associated with well-functioning suprapubic or urethral catheter drainage of the bladder; with prostatic infections in the male; and acute uncomplicated bacterial cystitis in female patients. The symptoms of acute cystitis and prostatitis are similar: frequency; dysuria; urgency; not infrequently hematuria; and in male patients, slowed voiding as the result of prostatic edema. Prostatitis often causes perineal pain, while inflammation or distension of the seminal vesicles may cause abdominal pain.

Pyelonephritis. The pathologic process is one of diffuse renal inflammation, not infrequently of variable intensity or focal character. Pure "pyelitis" probably does not occur. In fulminant infections especially in diabetes, renal papillary necrosis occurs. The pyelonephritic process becomes more chronic, renal secretary

tissue is gradually replaced by scar; function diminishes, the kidney contracts; and hypertension not infrequently supervenes.

Although pyelonephritis may be of insidious onset and reach chronic form without causing any symptoms, in its typical acute form it causes renal pain and tenderness and fever, and leukocytosis. These symptoms are commonly associated with urinary frequency during the acute phase of the disease.

Renal Carbuncle; Perinephric Abscess. These forms of kidney infection, while related to pyelonephritis pathologically are marked by development of suppurative foci in the glomerular zone of the kidney. As an abscess localizes it may remain intrarenal (renal carbuncle) or dissect outward through the renal capsule and into adjacent tissue planes as a perinephric abscess. Hematogenous etiology is common. The symptoms of this group of infections usually appear slowly, several weeks after the primary pyogenic infection. The onset is insidious as fever of unknown origin, a vague pain in the back, malaise and muscle spasm causing functional scoliosis gradually appear. Spasm of the iliopsoas muscle causes hip flexion. There is always a leucocytosis. Although the urine at first may show no leucocytes the stained sediment contains Gram positive cocci and perhaps also Gram negative bacilli. Ileus causing abdominal distention is a prominent physical finding. Deep tenderness in the flank is present, similar to that seen with acute pyelonephritis but with a more sustained discomfort persisting after palpation. A plain film of the abdomen shows enlargement of the renal shadow with obscuration of the perinephric markings; loss of the iliopsoas muscle shadow is common and the lumbar scoliosis with concavity towards the involved side is almost invariably striking. Urography may show diminished excretion and distortion of calices.

Treatment. The treatment of cortical abscess and/or perinephric abscess, once the diagnosis has been made, consists of incision and drainage. When a perinephric abscess is drained careful search over the surface of the kidney for evidence of an area of softening in the cortex must be made to assure that a cortical abscess is not also present.

Renal Carbuncle. Report of a Response to Modern Treatment. Colby, F. G.; Baker, M. P.; and St. Goar, W. T.: New England J Med 256: 1147-1148, June 13, 1957.

Perinephric Abscess in Infants and Children. A Study of Twenty-six Patients Surgically Treated. Swan, H.: Amer J Surg N. S. 61: 3-10, July 1943.

Pyeloureteritis and Cystitis Cystica

These are variant forms of urinary infection in which subepithelial cysts appear, representing a proliferative reaction of the transitional cell epithelium of urinary tract to chronic inflammation. Treatment is that of the underlying bacterial infection, cure of which often causes the lesions to regress.

Ureteritis Cystica: Treatment with Sulfadiazine, Penicillin and Aureomycin. Report of a Case. Clarke, B. G.: J Urol 68: 815-818, November 1952.

Principles of Treatment

In the diagnosis of urinary infections cultural testing of organisms for sensitivity to drugs should be carried out when possible. As a practical matter, urine is collected for culture at the patient's first visit. Treatment is immediately prescribed, in acute infections, on the basis of stained smears of urinary sediment or upon empirical considerations. If improvement is not evident within 12 to 36 hours, by the end of which cultures should have grown out, it may be assumed that use of another drug is in order. This may then be selected on the basis of drug-sensitivity tests.

In vitro testing of microbial drug sensitivity by disc or tube dilution methods is about 80 per cent reliable, and a real help in planning therapy. The final test of effectiveness of a drug is in cure. When a medication to which micro-organisms are sensitive in vitro fails to produce cure one of two things may have happened: (1) The organism is, notwithstanding laboratory reports, not sensitive to the drug, or (2) the patient has a structural change in the urinary tract such as hydronephrosis, prostatic obstruction, a foreign body or a stone which is preventing cure. The patient with refractory urinary infection therefore immediately becomes a candidate for excretory pyelograms, perhaps for cystoscopy, and for very careful clinical and bacteriologic re-evaluation.

Acute, uncomplicated urinary infections originating for the first time in a structurally normal urinary tract are usually due to a single micro-organism. *E. coli* is the commonest invader, and enterococci and *Aerobacter aerogenes* also are rather frequent. Uncomplicated acute infections are often self-limited; and almost always respond promptly to treatment.

Chronic urinary infections are more often due to mixed flora. *Alkaligenes faecalis*, *Pseudomonas aeruginosa*, *staphylococci*, *streptococci*, and other forms are found as well as the colo-aerogenes-enterococcus group. Chronic infections are commonly associated with radiologically demonstrable structural changes in the urinary tract: congenital anomalies, hydronephroses, calculi, prostatic obstructions, urinary fistulas, neurogenic disorders of the bladder, as well as with structural damage of the kidney due to infection itself and resulting fibrosis. When such infections progress to chronic pyelonephritis they are difficult to cure and may result in uncontrollable renal failure and hypertension.

While empirical treatment of an apparently uncomplicated and mild urinary infection is permissible the first time the patient is seen, treatment-failure always demands explanation. Intravenous pyelography should be performed and may be expected to disclose structural changes if any are present to account for treatment failure. The examination is contraindicated in patients

with asthma or with a history of iodide sensitivity. Even in otherwise normal subjects reactions to the contrast medium occasionally occur. Since the incidence of fatal reactions is in the vicinity of 1 in 120,000 examinations the procedure should not be undertaken unless equipment is at hand for resuscitation. Fatalities usually result from respiratory failure due to bronchiolar spasm. Accurate bacteriologic study of the urine is essential to the management of a urinary infection not responding to initial empirical treatment or recurring after apparently successful initial treatment.

The management of acute, severe urinary infections is an urgent matter. The majority of these patients require hospitalization if facilities are available. Immediate studies must include not only careful history-taking, physical examination and urinalysis, but immediate attempt to classify the responsible micro-organism by staining of the urinary sediment. Before therapy is begun, urine cultures are planted. If facilities are available cultures should be made by quantitative techniques and in-vitro drug sensitivity tests should be performed. It is, however, unnecessary and undesirable to wait for the results of cultures before beginning treatment.

If an acute infection does not show signs of amelioration with 24 to 48 hours it is likely that the organism is insensitive to the drug chosen or that un-drained suppurative infection (pyonephrosis due to urinary obstruction, or perinephric or intra-renal abscess for example) is present. Investigations such as pyelography may be indicated. Prompt reassessment of the therapeutic plan in terms of results of bacteriologic cultures is required. It should be noted that in-vitro sensitivity tests although extremely useful do not always correlate exactly with the way micro-organisms behave in clinical infections. If a drug indicated by such tests fails it may be necessary to employ other agents or combinations of agents. The advantages of particular agents in any situation must be balanced against their potential toxicity. Drug combinations of possibly synergistic action have a definite place in treatment of urinary infections.

(Three pertinent tables on the treatment of GU infections, including drugs of choice and bibliography on therapy will appear in a later issue of the Medical New Letter)

FROM THE NOTE BOOK

SURGEON GENERAL PRAISES CHIEF ATZERT

RADM E. C. Kenney MC USN, Surgeon General, gave the following letter to Joseph J. Atzert HMCM USN on 31 August 1964:

"On the occasion of your transfer, I wish to express appreciation for your outstanding performance of duty while assigned to the Hospital Corps Division, Bureau of Medicine and Surgery, during the period January 1962 to August 1964.

"Throughout this time you have performed all assignments in an exemplary manner. As the leading chief petty officer of the Distribution Section, you have consistently demonstrated the maturity, judgment, and sense of responsibility so necessary in filling that demanding position. Your insight into the personnel requirements of the Medical Department, coupled with the nicest sense of fairness and consideration for your fellow Hospital Corpsmen, has gained you many friends, both professional and personal, and has greatly enhanced the reputation of the Hospital Corps. Your military bearing and leadership have always been above reproach, and have reflected credit upon yourself, this Bureau, and the Naval Service.

"I extend my personal congratulations for a job "WELL DONE", and wish you continuing success in your Navy career."

Medical News Letter Erratum Notice

The information contained on Page 20 of Volume 44, Number 4, 21 August 1964 issue was partially in error.

The heading "U. S. Naval Hospital, Navy Prosthetic Research Laboratory, Oakland 14, Calif." should be "U. S. Naval Hospital, Clinical Investigation Center, Oakland, Calif. 94614."

DISCONTINUANCE OF CORRESPONDENCE COURSE SUBMARINE MEDICINE PRACTICE, NAVPERS 10707-A

Officer Correspondence Course Submarine Medicine Practice, NavPers 10707-A, is discontinued pending revision. All personnel who are currently enrolled in this course will be permitted to complete the course.

SENIOR FOREIGN MILITARY MEDICAL OFFICERS CONVENE FOR SEVENTH ANNUAL TRAINING PROGRAM AT U. S. NAVAL MEDICAL SCHOOL, UNDER SPONSORSHIP OF THE CHIEF OF NAVAL OPERATIONS

Welcome Aboard ceremonies were conducted by the Commanding Officer of the U. S. Naval Medical School on 27 August 1964 for the Senior Foreign Military Medical Officers from twelve countries. After the



*Official U. S. Navy Photograph, Medical Photography Laboratory,
U. S. Naval Medical School.*

First Row: CAPT J. H. STOVER, Jr. MC USN, CAPT Gilson Ferreira de ALMEIDA (Brazil), CAPT Aureliano REY Merodio (Argentina), CAPT Nelson Hora OLIVEIRA (Brazil), LT Mariano MAURA Reyes (Dominican Republic), CAPT Konstantinos RIZOS (Greece), CDR Antonino ALIQUO (Italy), CAPT J. M. HIRST MSC USN

Second Row: CAPT Tong Pil CHOE (Korea), CDR Tso-an CHEN (China), LCDR J. Pico BROTONS (Spain), CDR Wessel R. VERMEER (Netherlands), LCDR Dang Tat KHIEM (Vietnam), CDR Jalal HAMIDI (Iran), CDR Ralf von GREGORY (Germany)

greeting by CAPT John H. Stover Jr. MC USN, the Salutatory Address was delivered by RADM C. B. Galloway MC USN, Commanding Officer of the National Naval Medical Center. The visiting doctors were welcomed by CAPT F. E. Janney USN for the Chief of Naval Operations under whom this training program is established. This opening ceremony was most colorful with the various uniforms and flags of the countries represented by the trainees.

The Commanding Officers of the Medical Center component commands and many other officers and guests were in attendance to extend the hospitality of the Navy to those specially selected Medical Officers from abroad.

The 1964 program is a view in depth of Naval Medicine as it is practiced in the United States Navy. The curriculum contains numerous formal lectures and practical experiences in U. S. Naval Medicine Ashore and Afloat, Diving and Submarine Medicine, Aviation and Space Medicine, Amphibious and Field Medicine, and

elective clinical observation opportunities. Orientation visits will be made to military establishments, governmental agencies, industrial sites, and points of professional and cultural interest. The group will be conducted to locations related to their studies in Washington, D. C.; Chicago and Great Lakes, Illinois; Detroit, Michigan; Williamsburg and Norfolk, Virginia; Newport, Rhode Island; New London, Connecticut; New York, New York; Camp Lejeune, North Carolina; Philadelphia and Johnsville, Pennsylvania; and Pensacola, Cape Kennedy and Key West, Florida.

During the entire training program these Senior Foreign Medical Officers will become very familiar with the diversity of American life. The history of our country and the functions of our Judicial, Political, Economic and Social Institutions will be explained by recognized outstanding authorities in these and related fields.

The course is expertly organized to develop a strong basis for improved understanding of these processes

among the countries of the free world through this occasion for sincere and mutual exchange of ideas.

Graduation will be held on Friday, 4 December 1964 when these Senior Foreign Medical Officers will receive their diplomas and depart for their respective homelands. CAPT John M. Hirst MSC USN is Director of the 1964 program.

POST RESIDENCY ASSIGNMENTS IN NAVAL HOSPITALS

Cases have come to the attention of the Bureau in the past where medical officers have desired to remain at their Navy teaching hospitals after completion of residency training in order to better prepare for their American specialty board examinations. Because of the urgent need for most of these officers elsewhere, very few such requests have been approved. Now, it is believed the future needs of the Navy will permit approval of more of these requests. It stands to reason that not all residents completing training can be so assigned. Therefore, in order to establish a selection process among this group and to assure that the Navy will also benefit, the following plan has been approved by the Chief of Naval Personnel:

(a) Any medical officer who is completing residency training in a naval hospital can request an extension of his duty as a part of the staff of that hospital for a period of one year after training; and

(b) In that request such officer must agree to serve on active duty one year in addition to his period of obligated service (the one year at his hospital will be considered to be that additional one year).

All requests submitted in accordance with the above must be accomplished prior to receipt of reassignment notification and they will be considered, based upon the following:

(a) Commanding Officer's certification that the individual's services can be effectively utilized;

(b) Commanding Officer's recommendation that the request be approved; and

(c) The needs of the Navy.

—Medical Corps Branch, Professional Div., BuMed.

APhA MILITARY SECTION ACHIEVEMENT AWARD

At the recent American Pharmaceutical Association Convention in New York City, the Military Section, with approval of the full Council of the Association, approved an Annual Award sponsored by the Eli Lilly Company, to be known as the "APhA Military Section Achievement Award." This award is to be given annually to a member of the Military Section who makes the best original contribution to the Pharmaceutical literature during the previous year. It will consist of a cash \$500.00 honorarium and a suitable plaque to be awarded at the Awards Night Dinner at the Annual Meetings.

The judging committee for this award will consist of the Chairman of the Section and four other noted individuals not employed by the Federal Government. Published articles must be submitted for consideration three months prior to the Annual Convention.

All pharmacists on active or reserve duty with the Navy, in addition to pharmacists in other Federal Services, are eligible.

NOTICE FROM THE SOCIETY OF MILITARY OTOLARYNGOLOGISTS

The Society of Military Otolaryngologists will hold its 13th Annual Meeting on 20 October, at the Officers' Mess Open, Fifth Army Headquarters, 1660 Hyde Park Blvd., Chicago, at 6:30 p.m. Cost of the dinner will be \$4 per person with refreshments on a pay-as-you-drink basis.

The Society was founded in 1953 for the purpose of bringing together all military otolaryngologists for the advancement of the science and art of otolaryngology in the military service, and for the furthering of professional and social contacts between military otolaryngologists.

The organization now has 84 active members. This year they are writing to 61 eligible staff otolaryngologists and to 46 resident otolaryngologists to invite all who care to (1) apply for membership in the appropriate class and (2) regardless of their status to attend the meeting mentioned above, at which time Dr. Clair M. Kos of Iowa City will be honored for his services to the group in particular and to otolaryngology in general.

It is hoped that 106 of the 107 man eligible group (there's always one who doesn't get the word!) will promptly return a completed application form and fee, and that all who can will wangle TDY, TAD, AG's, or hops to big CHI in October to greet and meet our guest of honor, and to attend the other incidental meetings that will be held there that week. Please indicate the number of dinner reservations you desire and enclose payment for these. Deadline for dinner reservations is October 8, 1964. The address is:

CDR George R. Hart MC USN
Box 223, U. S. Naval Hospital
Philadelphia, Penna. 19145
Sec-Treas S. M. O.

Preparatory School Scholarships to Be Awarded Young Men Desiring to Obtain Entrance to U. S. Naval Academy. The Society of Sponsors of the United States Navy awards scholarships to young men for preparatory schools to prepare them for entrance to the United States Naval Academy.

Young men eligible are as follows:

Category I—Sons of deceased, retired and active Navy and Marine Corps personnel

Category II—Sons of personnel of the other military services

Category III—Sons of civilians

(Sons of deceased and retired Navy and Marine Corps personnel shall have precedence over sons of active duty personnel who shall in turn, have precedence over sons of personnel of the other military services. Sons of military personnel shall precede applicants whose parents are not members of the Armed Forces).

To receive such an award, an applicant must be acceptable to the Scholarship Committee of the Society of Sponsors as to Character, Aptitude for the Naval Ser-

vice, Scholastic Standing and Physical Fitness. The financial situation of his parents or of the applicant himself in case he is an orphan, must be such as to warrant the expenditure of the funds of the Society in making such an award.

Application blanks may be obtained from:

Mrs. Roy S. Benson
Quarters "O"
Navy Yard, Washington 25, D. C.



DENTAL SECTION

Report of a Case of Erythema Multiforme

LCDR J. E. Hyde DC USN, LCDR D. T. Fenner DC USN, and LT R. A. Murphy MC USNR. USS Yosemite (AD-19).

Erythema Multiforme is an acute inflammatory disease of unknown origin, usually involving the skin and mucous membranes. It is most frequently found in young adult males. The disease has a rapid onset and is normally accompanied by a high fever. Erythema Multiforme greatly resembles and must be differentiated from Vincent's Infection (trench mouth), Stomatitis Medicamentosa, and Acute Herpetic Stomatitis. In the case described, the differentiation was particularly difficult because there were no skin lesions or lesions of mucous membranes other than the mouth.

The patient reported to sick call complaining of an extremely painful mouth and bleeding lips and gums. Physical examination revealed a young well-nourished male, who appeared toxic and had a temperature of 101.4 F. The lips were swollen, cracked, and bleeding. The lower half of his face appeared edematous. His breath had a marked fetid odor similar to that associated with Vincent's Stomatitis. In the oral cavity, the buccal mucosa, the gingivae, and the hard and soft palate bore many ulcers. These ulcers were shallow and ranged in diameter from $\frac{1}{4}$ to one inch. Some of the ulcers were covered by a grayish pseudomembrane, which could be removed quite easily. There was greatly increased salivation and drooling from the commissures of the lips. The teeth and a large part of the gingivae were covered with *materia alba*. The rest of the physical examination was essentially negative.

The patient's history revealed that he had first noticed the onset of the symptoms three days previously, but that it had not been "too bad" until that morning. A tooth (No. 19) had been extracted nine days previously, but there had been no post-operative complications. He had had a "cold" two weeks previously for which he had taken "aspirin." He denied having been under any medication or of having received any immunization injections recently. He had not eaten unusual food. He denied having any allergies. He did admit to a history of "coldsores" whenever he had a cold. The family history was unrevealing. A tentative diagnosis of Acute Herpetic Stomatitis, with a secondary Vincent's Infection was made. A mucosal smear was essentially normal, as were the WBC and differential blood count, except for a slight rise in the eosinophiles.

The patient was given 600,000 units Procaine Penicillin I. M. Stat and placed on a regimen of 250 mg (400,000 units) PenVee tablets q4h. and saline mouth rinses q1h.

By 1600 that evening, his temperature had risen to 102.6 F. At 1630, 600,000 units of Procaine Penicillin were again administered I. M. and by 1920, the temperature had dropped to 99.8 F.

On the second day, the patient was again examined. There was no marked change in his physical appearance, but the saline mouth rinses had washed away enough of the *materia alba* so that the appearance of

the gingivae could be better evaluated. Because the gingivae appeared normal, we felt that Vincent's Infection was ruled out. The diagnosis was changed to DU (Erythema Multiforme). By the third day the patient was afebrile and the swelling of the lower face had started to subside. Since the patient was limited in his ability to eat, and was to be maintained for a number of days on a liquid diet, Nonavitamins (one tablet TID) were prescribed. On the fourth day, Na_2HCO_3 mouth rinses were substituted for the NaCl rinses. By the sixth day, there was some improvement in the appearance of the oral tissues and the patient's general condition was much improved.

Since the patient was now feeling well enough to be able to move about, a consultation was arranged with the dermatologist at the United States Naval Hospital, Newport, Rhode Island. The diagnosis of Erythema Multiforme was confirmed by the dermatologist who prescribed Metacortin (Prednisone) for three weeks in diminishing doses (5 mg q. i. d for one week, 5 mg t. i. d for one week, and 5 mg b. i. d for one week). The remainder of the recovery was rapid and uneventful. On the tenth day, the PenVee was discontinued and on the twelfth day the patient was discharged to duty.

The patient has been seen a number of times within the four months following his return to duty. There has been no recurrence of the disease. *Summary:* A case of Erythema Multiforme has been discussed. This case was of particular interest because of the limitation of the lesions to the oral cavity.

PERSONNEL AND PROFESSIONAL NOTES

ADA Recognizes Electric Toothbrushes. The American Dental Association has announced recognition of two electric toothbrushes—manufactured by General Electric Company and E. R. Squibb and Sons—as "effective cleansing devices." It was the first time that the Association had given such recognition to any electric toothbrush. In a statement published in the September 1 issue of *The Journal of the American Dental Association*, the ADA Council on Dental Therapeutics classified the General Electric brush in Group A. The Council has authorized use of the following statement by the company: The General Electric toothbrush has been accepted (Group A) as an effective cleansing device for use as part of a program of good oral hygiene to supplement the regular professional care required for oral health. The Council classified the Squibb toothbrush in Group B and authorized use of the following statement by the company: The Broxodent toothbrush has been provisionally accepted as an effective cleansing device for use as part of a program of good oral hygiene to supplement the regular professional care required for oral health. Group A consists of accepted products listed in *Accepted Dental Remedies*, published annually by the Council. Group B consists of products which, because of their relative newness, lack sufficient

evidence for regular listing in *Accepted Dental Remedies*, but for which there is good evidence of usefulness and safety. The Council on Dental Therapeutics has emphasized that the distinction between Group A and Group B products is related to time and available evidence and not to quality or effectiveness. The Council also issued a general report on electric toothbrushes. "The powered toothbrushes that have appeared on the market have varied widely in their operating characteristics, their construction, their cost and their potential hazard either from electrical shock or from the possibility of traumatizing (injuring) the oral tissues," the report said. "The competitive promotion of some of these devices has at times displayed a tendency toward exaggerated claims and unwarranted disparagement of the conventional manual toothbrush. There has also been a wide variation in the character and amount of clinical testing to which the several devices have been subjected." For these reasons, the Council said it had included electric toothbrushes in its evaluation program "in order to provide authoritative information to the dental profession, and general guidance and protection to the public."

The Council emphasized that currently available clinical proof showed that the two classified brushes had proven cleansing ability, but that there was not yet sufficient evidence for therapeutic claims by any brush. The Council said that "promotional claims for toothbrushes (either manual or powered) should be limited to those of a cosmetic nature and to those associated with oral cleanliness as an aid in the prevention of some forms of periodontal disease." The Council added that "consumer advertising should not include claims relating to the treatment of existing oral disease because of the potential for harm if the device were used for this purpose without professional supervision." The Council report indicated that there was no proof that one type of motion in a powered brush was superior to another. In its present evaluation of powered brushes, the Council said it will consider the following four standards:

1. As adequate evidence of technical safety, the device must have been submitted to examination by and meet the requirement of an appropriate testing laboratory such as listing by Underwriters Laboratory, Inc. This requirement may be waived for devices operating from non-rechargeable batteries of low voltage.
2. Adequate evidence must be available from clinical investigations to show that unsupervised use of the device will not be harmful to oral hard or soft tissues or restorations.
3. Adequate evidence must be provided from clinical tests to show that the device can be readily employed under unsupervised conditions by the larger segment of the public to provide a high degree of oral cleanliness.
4. Claims for the device in labeling and in advertising to the public shall be limited to those related to oral cleanliness and the advertising shall avoid unwarranted disparagement of the conventional toothbrush.

Use of Resuscitation Devices. Resuscitators for use in Dental Clinics have been the subject of considerable discussion and correspondence within and outside the Defense Department. Since there appeared to be a degree of controversy and uncertainty as to both the need and type of resuscitators required in Dental Clinics, this office sought the advice and counsel of the National Research Council, National Academy of Sciences.

After deliberating with anesthesiologists and dental members and considering the views of representatives from civilian and military dental professional groups, the Council made the following recommendations on 4 November 1959:

1. Dentists in the service clinics should receive periodic refresher training in resuscitative measures.
2. The Dental Clinics should have a pre-arranged plan for management of respiratory emergencies.
3. The use of a mechanical positive pressure or positive-negative pressure cycling device in the management of dental respiratory emergencies is definitely *not* recommended.
4. The simplest pressures such as a bag, mask, and oxygen supply should be available.

These conclusions represent the opinions of a representative group of knowledgeable people and provide appropriate advice and guidance as deemed applicable. (Excerpt from The Assistant Secretary of Defense for Health and Medical Progress Report for December 1959). In view of this information, dental activities are advised that the item recommended for procurement to satisfy emergency resuscitative needs is "FSN 6505-975-3636 OXYGEN, USP, with TUBE and FACE MASK." (Submitted by CAPT L. M. Wallace DC USN, Field Branch, BUMED, Brooklyn, New York.)

Navy Dental Corps Training Films. Navy Dental Corps training films currently available, with their catalogue number, date of production, and a short description, are listed to facilitate use by all interested individuals or groups. Civilian requests should be addressed to the Director, Medical Film Library, U. S. Naval Medical School, National Naval Medical Center, Bethesda, Maryland 20014.

Department of Defense requests should be directed to the nearest Navy training film library. If this address is not immediately available or the library is not able to supply the film, requests will be honored by the Medical Film Library, National Naval Medical Center, as indicated for civilians.

All films distributed in 1964 and those to be released in the future may be obtained from the Medical Film Library of any Naval Hospital within the continental limits of the United States. The following films have been released in 1964: *Periodontal Disease: Prevention and Early Treatment* (1964) (Color, sound—22 min.) MN—9727.

Summary: Develops the basic theme that the dentist must treat not only the teeth but also their supporting structures. Establishes three main rules: diagnose and

treat periodontal disease early, consider periodontal response in all areas of restorative dentistry, and teach patients good oral physiotherapy; illustrates these rules with typical cases, explaining the progression from marginal gingivitis to periodontitis, and the periodontal considerations essential in the practice of the restorative specialties. Live photography, animation models. Many intraoral close-ups.

Immediate Denture Service: Coordinated Management (1964) (Color, sound—20 min.) MN—9739.

Summary: Demonstrates the collaborative effort of diagnostican, prosthodontist, surgeon and patient in the planning and consummation of immediate denture service. Emphasizes the importance of diagnosis, continuity of responsibility and instruction of the patient. Particularly advocates conservative treatment, showing that alveolectomy is seldom necessary.

Intraoral Roentgenography: Improved Equipment and Technique (1964) (Color, sound—26 min.) MN—0774.

Summary: Purpose is to acquaint dental personnel with the advantages of variable-KV roentgenographic equipment and to demonstrate the superiority of films produced by the "long-cone" technique. Explains principles of roentgen-ray generation and characteristics of the ray. Emphasizes control of radiation exposure by filtering, use of fast film and increase of distance. Explains use of increased kilovoltage for optimum penetration, control of radiation exposure and improvement of image quality. Illustrates in detail the placement of film to produce images with best anatomical accuracy, using the right-angle technique with the extended tube of "long cone."

Preventive Dentistry: The Prevention of Oral Disease (1964) (Color, sound—20 min.) MN—9868.

Summary: The prevention of dental caries and periodontal disease is the subject presented in this motion picture. By means of dental office scenes and animated drawings, factors responsible for these diseases are clearly described and illustrated in detail. Progression of the early stages of dental caries and periodontal disease to eventual loss of the teeth is discussed as consequences of the neglect of the care of the teeth and supporting structures. This motion picture is the first of a series dealing with a very challenging problem . . . that of educating the patient in preventive dentistry measures. The subject matter is prepared for ages 17 to 35 but has value for younger audiences as well as parents of young children and is of utmost importance to all dental personnel. Attention is directed to dental problems most common to the given age group with the purpose of stimulating good habits for the prevention of those diseases responsible.

Surgical Endodontics (1964) (Color, sound—) MN—9773.

Summary: Taking a conservative point of view and maintaining the theme that endodontic surgery is an

adjunct to thorough root canal therapy, this film explains the process of periapical inflammatory reaction and demonstrates three surgical corrective procedures: curettage standard root resection and resection with amalgam seal. In urging great caution in selection of cases for surgical management, the film first reasons that ideally the patient's own physiological defenses institute repair of periapical damages when root canal irritants have been removed and the space has been obliterated. The picture then shows techniques and precautions, to be followed when surgery does become necessary.

A Sweet Tooth Can Spoil A Sweet Smile. A one-page, fold-out pamphlet, prepared by the Philadelphia County Dental Society, presents some interesting patient education information. These pamphlets are available, as long as the supply lasts, and make excellent waiting room material. They may be ordered, 25 at no cost, from the Council on Dental Health, Philadelphia County Dental Society, 17th and J. F. Kennedy Boulevard, Philadelphia, Pa. Briefly, this is the material and manner presented: The human body requires 42 lbs. of sugar a year to maintain normal health. The average American consumes 144 lbs., or over 100 lbs. of excess sugar each year. Since the greatest damage to teeth is caused by between meal sugar-containing snacks, we

should substitute fresh or dried fruits, unsweetened fruit juices, vegetables, or dairy products.

CAPT S. E. Tande Participates at Conference. During the week of August 9th, CAPT S. E. Tande, DC USN, Head, Audio-Visual Department, U. S. Naval Dental School, National Naval Medical Center, Bethesda, Maryland, presented a talk entitled "Emergency Resuscitation" at the Conference Workshop of the International Rescue and First Aid Association. CAPT Tande also monitored the U. S. Naval Dental Corps exhibit, "Mr. Disaster," during the 17th annual Conference, which was conducted at Bal Harbour, Florida, and attended by representatives from overseas, Canada, and the United States.

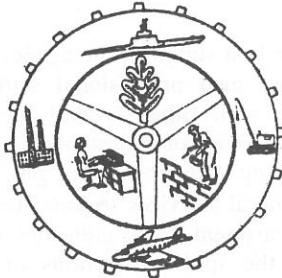
Nedical News Letter Erratum Notice

The information contained on page 34 of Volume 44, Number 4, 21 August 1964 issue was partially in error.

The figure 150 mg/ml (line 3) is corrected to 1.5 mg/ml and the figure 145 mg/ml (line 7) is corrected to 1.45 mg/ml. (Appreciation is extended to RADM William M. Silliphant MC USN (Ret) for calling our attention to this error.)

APPROXIMATE CARBOHYDRATE CONTENT OF COMMON FOODS

Food	Serving	Sugar Equivalent
Breads:		
White or rye	1 slice	2 tsp
Cinnamon bun with raisins	average	6 tsp
Chocolate cake, 2 layer, iced	1 slice (1/12 cake)	15 tsp
Candies:		
Chocolate bar	5 cent size	7 tsp
Chewing gum	1 cent stick	1/2 tsp
Carbonated Drinks:	8 oz.	5 tsp
Fruits, Fresh:		
Apple	1 medium	4 tsp
Banana	1 medium	6 tsp
Fruits, Dried:		
Apricots, figs, prunes or dates	2-3 medium	4 tsp
Fruit Juices, unsweetened:	8 oz.	4-5 tsp
Gelatin:	1/2 cup	4 tsp
Milk, plain:	8 oz.	2 tsp
Nuts:	3/4 cup	4 tsp
Pie:		
Fruit	1 slice (1/6 med. pie)	13 tsp
Custard	1 slice (1/6 med. pie)	10 tsp
Spreads:		
Jam, jelly, marmalade	1 tbs	2-3 tsp
Vegetables:	1 serving	2-3 tsp



OCCUPATIONAL MEDICINE

The New Federal Employees Occupational Health Service Program

John W. Macy, Jr., Washington D. C., *Jour of Occupational Medicine*, 6(7): 279-282, July 1964.

I welcome the formation of the Council of Federal Medical Directors for Occupational Health and its promise of close professional collaboration with the Civil Service Commission on behalf of a sound employee health program in the federal service. The desire for an improved and progressive federal employee health service program, extended to a larger proportion of the federal work force, is something the Commission has shared with occupational physicians for a long time. While legislative authority for occupational health services has existed since 1946, the law and the 1950 statement of policy did not carry strong executive interest and support. As a result, a few federal agencies developed extensive programs, some agencies provided more limited programs, and many did little or nothing.

The new policy statement, which has been developed jointly by the Bureau of the Budget and the Civil Service Commission, is a tremendous step forward. First of all, it states that each department and agency head shall (with certain conditions) establish an occupational health program. This is significantly different from the 1950 statement which said they are encouraged to do so. Second, it specifies clearly the services such programs shall include. The result will be a reasonably uniform, substantial, government-wide occupational health service program, which is long overdue.

The objectives of this program are entirely consistent with President Johnson's drive for efficiency and economy in government administration, for they are, basically, the improvement of employee morale and productivity. The program is in no sense a "fringe benefit"; it is a program for the protection and conservation of our most precious resource—the human resource.

No one questions that it is economically sound to spend time and money on the maintenance of property and equipment in which we have made an investment. We take pains to keep our buildings, machines, cars, and furniture in the best possible condition. We make the biggest and most important investment of all in our human resources, and yet we have paid a minimum of attention to "maintenance."

For a long time the federal service has kept abreast of—and in some areas has been ahead of—private industry in progressive personnel administration. We are continually making refinements and improvements in merit-system recruiting, competitive testing, job classification, in-service training, career development, and the like—but we have tended to forget the importance of a sound mind in a sound body. In this respect, we have trailed far behind private industry, as industrial physicians well know from their professional associations.

Historically, the government seems to have taken an interest in the health of its employees only at the very beginning and the very end of their careers (at appointment and at retirement) with nothing in between unless an employee had the misfortune to suffer injury or illness on the job. Now, at last, we are moving toward filling that long, long gap.

I do not mean to suggest that that gap has been entirely empty up until now. If that were the case, there would be no such thing as the Council of Federal Medical Directors for Occupational Health. It is true that since the enactment of the 1946 legislation progress has been made toward providing some measure of occupational health services to substantial numbers of Federal employees. Nevertheless, a great many employees still

have no health facilities available to them where they work.

The Bureau of the Budget recently made a study of 2,346,700 employees to determine the size of the group not covered. Slightly more than half of the total number were in the Department of Defense, the Veterans Administration, and the Department of Health, Education, and Welfare. The Department of Defense reported that health services are available to all of its employees at locations where there are sizable concentrations of personnel. The Veterans Administration has some health facilities for almost all of its employees. The Department of Health, Education, and Welfare indicates that all of its employees in Washington and 64% of those in the field are served by health units. Of the remaining 1,126,400 employees in the other 37 reporting agencies, health services are available to about 37%, or 417,600. The remaining 708,800 employees have no health facilities available.

Some of the employees not covered are working in small groups and at isolated work locations. It does not seem economically feasible at present to extend services to them. Others, however, are working in metropolitan areas where there are a number of federal installations. We believe that basic occupational health services can be extended to most of them through the development of cooperative programs.

The New Program

Before discussing details of this new policy directive I want to emphasize two general principles. First, this program is concerned with the health of employees in relation to their work; it is just as pertinent to their efficiency and productivity as any other qualifications, and is therefore the legitimate and necessary concern of the employer. The personal health of the employee is, of course, his personal responsibility, and this program does not intrude into that area.

Second, the relationship between this program and the Federal Employees Compensation Act is clarified. The Compensation Act provisions are not changed, but the directive states a coordinated policy for agency operations under the two authorities and it goes beyond the 1950 Policy Statement (which it replaces) in building toward a modern-day occupational health service. Agency programs to eliminate work hazards and health risks have generally emphasized accident prevention; this program emphasizes preventing and controlling such health risks as occupational disease.

Each agency is to provide employee health services of the scope specified for all employees who work in groups of 300 or more in the same or nearby buildings. Services may be provided for smaller groups where warranted by working conditions involving special health risks.

The agency head, after consultation with the Public Health Service and the Department of Labor as to pertinent standards, is to establish the health program in

the manner best suited to the agency situation: by using the agency's own professional staff and facilities; by contracting with other federal agencies having such staff and facilities; or by establishing an agency staff or by contracting with nonfederal physicians.

The General Services Administration and the Post Office Department have indicated their willingness to carry out the special functions of providing suitable space for agency health unit facilities. In those cases where special occupational health risks require health services for groups smaller than 300, the services will normally not be set up in federal space, unless other suitable sources are not available.

The new program clearly states the nature of the occupational health services that are to be provided. The extent of each of those services is to be determined by the agency head on the basis of the number of employees to be served and the conditions under which they work. That determination will, in turn, decide the size and the composition of the professional staff required, and what kind of facilities will be provided. Wide variation is to be expected, since the employee groups served will range from 300 to several thousand.

The occupational health services are to be "uniformly composed of and limited to" the following:

1. Emergency diagnosis and treatment of injury or illness that may occur during working hours. This service is basic, and is to be provided in all cases either by the federal or contract professional staff, or by taking the employee to the nearest community doctor or hospital.

2. Health examinations of two types: first, the pre-employment examinations required of persons selected for appointment, which at present must be paid for by the person selected unless he can make arrangements with a federal medical officer. It is anticipated that the number of cases in which appointment is made subject to later medical examination—which has been a necessary evil in the past—will be greatly reduced by this provision. Second, any examinations after appointment that the agency head may require of designated employees in order to evaluate their health status in relation to present or proposed work assignments. Such an examination may be authorized if necessary to attain maximum efficiency and productivity and to assess the effect of the work or working conditions on the employee's health and the effect of the employee's health on his work. These needs may arise in connection with changes in assignments or changes in an employee's physical condition.

3. Administration of treatments and medications prescribed in writing by the employee's personal physician and furnished by the employee, or by a physician providing medical care under the Federal Employees Compensation Act. This service is not mandatory; it should be provided if, in the judgment of the physician responsible for the federal health service, there is sufficient staff, time, and equipment, and if the treatment is

reasonably necessary to maintain the employee at work.

4. Referral of employees (at their request) to private physicians, dentists, and other community health resources.

5. Three types of preventive services: a. Appraising health hazards in the work environment and reporting them to agency management as an aid in preventing and controlling health risks. b. Providing health education to encourage employees to maintain personal health and fitness. c. Providing specific disease-screening examinations such as chest x-ray, a tension-test for glaucoma, and the like, as well as immunizations. When these are required by the agency, all costs will be paid by the agency. When mass screening examinations or immunizations are provided by the agency on a voluntary basis, the employees will pay for the materials and medications.

Summary. This, then, is the framework within which the new federal employees occupational health service program is to operate. To recap briefly, it includes on-the-job emergency treatment, pre-employment and fitness-for-duty examinations, treatments prescribed by the employee's own physician, referrals to community health resources, and preventive programs. It is that last-named service that is the one not previously provided and I consider it a most significant gain. In the program it is clearly required (1) that the health services shall be under the direction of a licensed physician; (2) that nursing services shall be provided by registered professional nurses; and (3) that to the maximum extent possible these personnel be qualified in occupational medicine and nursing. Having the services under the direction of a physician does not mean that there must be a physician stationed at every health unit. It means that a physician at a suitable location (such as agency, regional, or district headquarters) shall be in charge.

It is estimated that about 2000 new health service units will be established as a result of this expansion. This will eventually require the employment of additional federal medical officers. The number required will depend upon the scope and pace of program developments in the several agencies.

An amusing sidelight on this subject—and a further illustration of the fact that in Washington all information is public information—is that the Civil Service

Commission has already received at least one call from a nurse asking "Who's doing the hiring?" I hope this is a good omen. I hope that the federal employees occupational health service program will be sufficiently interesting, progressive, and challenging that qualified doctors and nurses will be eager to take part in it.

Those already in this important work will have a new challenge before them: to organize and operate the best possible employee health service in keeping with the requirements of this program and within the \$10/employee annual limitation on expenditures. (This limitation, by the way, has a floor of \$10,000 annually for units with more than 300 but not more than 1000 employees.)

I anticipate protests that some facilities already provide more extensive service than this program specifies. I know that is true in some cases. But in order to achieve the full benefits to the government which this program is potentially capable of achieving, it must be a consistent program covering as large a percentage of the federal work force as possible. As such, it will play a constructive role in government programs for hiring the handicapped and older workers; it will conserve sick leave; and it will reduce group health insurance costs. These benefits, in addition to the more obvious and direct results—such as better mental and physical health, higher morale, and a more vigorous, efficient, and productive work force—should inspire and stimulate all of us to new and determined efforts.

In keeping with the responsibilities specifically assigned to me, I will see that all possible assistance is provided to agencies in establishing or improving their health programs and to agencies taking joint action to set up cooperative health services.

To be sure, there are some limitations in the authorization, and there will be limits in agency resources. But more important is that there will eventually be "live," functioning occupational health service programs—built on sound AMA standards—in some 2000 work locations that have had nothing, and that substantial improvements will be made in countless others. This is an opportunity to move ahead at a more affirmative and rapid pace with clear direction toward goals of significant meaning to those who work for the government in behalf of all the American people.

Prospects of successful vector control by genetic manipulation have been considerably enhanced by recent studies of meiotic drive. This phenomenon causes certain loci or chromosomes to be present disproportionately often in the gametes contributing to each generation. Thus, even if a chromosome carries a lethal or deleterious gene, it may tend to increase in the population if it simultaneously exhibits meiotic drive. —WHO Chronicle 18(2): 45, February 1964.

The population/doctor ratio in the Eastern Mediterranean countries ranges from about 1000 to 1 to well above 30,000 to 1. Two-thirds of the Region's population live in countries where it is 20000 to 1. Drastic replanning of medical education is needed to make up for the shortage of doctors, since most of the 31 medical schools in the Region are stretched to the limits of their capacity.—WHO Chronicle, 18(3): 106, March 1964.

The Concept of Biological Variation in Audiometric Reference Levels

Kenneth C. Stewart MS, Journal of Occupational Medicine, 6(7): 293-296, July 1964.

Davis and Kranz have summarized much of the discussion relative to the establishment of new reference levels for pure-tone audiometric threshold measurements. These discussions suggest to us a basic problem which is encountered in the establishment of any such zero reference level. We recognize two distinctly different aspects of this basic problem. One is associated with the manufacture and physical calibration of the audiometric test instrument, and the other deals with the description and interpretation of the decibel hearing levels which are obtained from the use of an instrument which is properly calibrated with respect to some reference level. This first aspect of this problem—that is, the physical calibration of the audiometer with respect to some reference point—does not present any insurmountable difficulty. Any properly equipped acoustic laboratory, staffed with adequately trained people, can handle physical calibration of the instrument relative to whatever standards are adopted. The second aspect of the problem presents difficulties that are not easy to overcome. The practice of describing decibel hearing levels, which appear on the audiogram form as deviations from the accepted standard reference sound pressure level at each frequency, often results in misinterpretation of the individual pure-tone threshold data. Current procedures and past practices, it appears to us, place too much emphasis on the importance of "audiometric zero" in the interpretation of test data. This problem is evident with the current standard zero levels and it will not be solved with adoption of the proposed new "international standard zero reference level." This paper is concerned, therefore, with the second aspect of the problem. It seems to us that, in our attempt to establish more adequate "zero levels" for audiometric norms, our attention has not been directed toward the fundamental issues of the problem. Perhaps we should emphasize the basic biological variations of man rather than some measure of the central tendencies of groups when we evaluate an individual's hearing sensitivity for pure tones. Looking at the problem from this point of view, there is, in fact, no such thing as "audiometric zero" if audiometric zero is presumed to represent a "point" indicative of normal hearing. All that this means, of course, is that normal hearing sensitivity for pure tones is better described as a range of values than as a point value. We recognize that audiologists, otologists, and others who are trained in the clinical aspects of hearing evaluation are aware of this fact. But we

are convinced that, frequently, the thinking of many people involved in the interpretation of hearing test results, is influenced by our current practice of measuring and plotting pure tone sensitivity thresholds relative to a "normal" zero point. Whether that zero point is the current American standard or the proposed new standard makes little difference in this respect. Part of the difficulty centers around the fact that many different kinds of individuals, with varied kinds of training and backgrounds are necessarily involved with hearing testing and evaluation of hearing abilities. And, because of this, the terms used often mean different things to different persons. Let us not assume that we all know that "normal" pure tone hearing sensitivity is really a range of values around some zero point, whatever mean or median or modal value that "zero" might represent. Let us plan our measurements and the description of our data so that we can see where the individual's hearing sensitivity lies with respect to the best ranges which we can develop for the normal population. Industrial medical directors, audiologists, otologists, lawyers, compensation boards, and many others have a stake in our decisions.

One possibility which could lead to a clearer interpretation of pure-tone threshold test data would require that we do the following: 1. Abolish the "zero" hearing level altogether from the audiometer and the audiogram form, leaving this "zero" in the physical acoustics laboratory. 2. Choose an audiometric calibration reference level which is lower in intensity, at each frequency, than the most sensitive pure-tone thresholds that we would encounter in real people of any age. This would eliminate negative numbers from the audiogram and eliminate the possible confusion resulting from interpretations that are frequently made which imply "better than normal" hearing sensitivity for thresholds having minus values. The audiometer could be calibrated against a reference level which would be equivalent to current audiometric zero, minus 30 db. This could be easily accomplished in the physical laboratory. It should be emphasized here, that this is a "calibration" process involving a problem for the laboratory and that while this reference level for calibration purposes is still based on a point value, it is not emphasized on the audiogram form. 3. Eliminate the "O" on the audiogram form. The top line of the audiogram form would be designated as the "lower bound." Here we have borrowed a concept from mathematics. In our usage

of the term, "lower bound" means a sound pressure low enough that no individual can hear it. The ordinate of the audiogram form would be scaled in decibels above lower bound. Since lower bound is still based on a concept of normal modal values, these decibels will be of the "hearing level" type. In other words, we are still utilizing a physiological, rather than a physical reference. This procedure would be followed rather than the utilizing of decibels of sound pressure level, which would change too drastically the shape of the sensitivity curves we are accustomed to evaluating.

4. Print on the audiogram form the curves representing the median and the first and third quartiles for a given age class. These quartiles would be plotted in decibels of hearing level above lower bound. Population norms in terms of medians and first and third quartiles would be used. Norms for different age groups would, of course, vary from one to another, and norms should be developed for each 5- to 10-year age group. Thus, when a pure-tone hearing threshold test is accomplished, the results would be plotted on an audiogram form constructed for the age group into which the particular individual falls. A separate audiogram form, for example, would be used for each 5- or 10-year age group—with normal medians and quartile ranges for that age group printed on the form. In this case, one which would be used for plotting the audiogram of an individual between 31 and 36 years old. It should be emphasized here that we are not recommending that the specific quartiles become the national or international reference norms. These values, while based upon accurate experimental findings for a fairly large group of people, are used here for illustrative purposes only. The individual pure-tone threshold results were taken from a real individual who had been subjected to noise exposure over several years. A comparison shows a major advantage of this method of displaying pure-tone thresholds. The examiner can see where this individual's thresholds lie with respect to the median thresholds of a group of normal hearing, nonnoise-exposed individuals of his own age class. He can also see where this individual's thresholds lie with respect to the range of this group of normals.

We should emphasize that, while the audiometers are still calibrated with respect to a physiological "zero" point, the reference against which the individual's pure-tone sensitivity thresholds are compared is the particular population norm (median, first, and third quartile) printed on the audiogram form.

As previously indicated, population norms must be developed for each 5- or 10-year age group. This is based upon normal values; which are used here for illustrative purposes.

There is one other possible modification for recording the test data, which would eliminate an aspect of current procedures that confuses many people. The population norms and the test results could be plotted in exactly the same way except that lower bound would be

at the bottom rather than the top of the audiogram form. Much confusion is generated, even among audiology students and others, by the use of the term, "raised threshold," when a raised threshold represents a threshold which is plotted lower on the audiogram form. Plotting the data from the bottom up would make for more consistency in the language used to describe threshold results. In this case a "raised" threshold is also "raised" on the form. It is possible that this particular modification might result in some confusion for awhile because of our customary interpretation of audiogram shapes such a "flat and sloping," etc.; however, as clinicians and others become more accustomed to this procedure it should result in less confusion in the language used to describe abnormal pure-tone thresholds.

A few final observations with respect to the recommendations we have made are as follows.

First, these recommendations suggest a method of recording individual pure-tone threshold data which we feel would be of help for large numbers of people from various disciplines who are concerned with interpretations of audiometric data. We feel these procedures would help these people to view pure-tone audiometric test results more realistically because they emphasize the biologic variations of man. We observe at least two kinds of biologic variation in man's pure-tone hearing sensitivity. One is the variation that is present among individuals of similar ages; the other, the variation that occurs among individuals of differing ages. Our proposals recognize and emphasize the existence of these variations in the interpretation of pure-tone threshold results.

We wish to recognize that this paper has not dealt with the development of population norms—except to suggest that normal ranges as well as normal measures of central tendency should be developed for various age groups. The method which we have suggested for describing an individual's pure-tone threshold data will, however, be compared against whatever normative data are developed. And any alteration in norms, now or in the future, will not alter the manner of interpretation of individual pure-tone thresholds.

We also wish to recognize the fact that these recommendations do not change the nature of problems faced by the highly trained clinical audiologist and otologist, who utilize pure-tone threshold test results for diagnostic purposes. It is obvious that the problems in the clinical diagnostic setting, relative to interpretation of these test results in terms of specific ear pathology, disease entities, and the individual's social and communicative handicap, involve concepts which are perhaps independent of the manner in which the test data are presented. We feel, however, that the person who is highly trained in areas of clinical audiology evaluation would find our proposed procedures for calibration and data presentation entirely compatible with respect to his needs for evaluating the individual's handicap

from pure-tone data. This person would likely have little difficulty in adjusting to a new method of describing pure-tone threshold data. On the other hand, many people, particularly those working with large industrial populations, may look at the interpretation of pure-tone

threshold data a little differently—and we believe more realistically and with less confusion—if we modify our procedures along the line we have suggested. And we would eliminate at least some of the confusion centering around the meanings of audiometric "zeros" based upon measures of the central tendencies of population groups.

Cadmium Poisoning - California

W. B. Walshe, Morbidity and Mortality Weekly Report, U. S. Department of Health, Education, and Welfare, Public Health Service, 13(31): 267, 7 August 1964.

From 30 - 45 minutes after drinking pink lemonade, 23 school children, aged 5 to 9, experienced abdominal cramps and vomiting in an outbreak due to cadmium contamination. All recovered within 48 hours. The severity of symptoms correlated with the amount of lemonade consumed. Nine other children, who only tasted or consumed small amounts of the lemonade, did not become ill. Each child brought a lunch from home; the lemonade was the only food common to all

32. The lemonade was prepared by adding the proper amount of city water and ice cubes to 3 cans of commercially prepared concentrate. The mixture was placed in a 3-gallon cadmium plated war surplus container for the 3½ hour interval between preparation and serving.

Laboratory analysis of a sample of the remaining lemonade revealed 21 parts per million of cadmium, a dosage considered sufficient to cause the symptoms in the children.

Asbestos Exposure During Naval Vessel Overhaul

William T. Marr, American Industrial Hygiene Association Journal, 25(3): 264-268, May-June 1964.

Problem

The Long Beach Naval Shipyard insulation shop has 60 to 80 employees working primarily aboard ship applying insulation containing asbestos to the steam power plants. Five employees, averaging 15 years exposure, have retired on disability compensation due to asbestosis. One employee, after 10 years employment as a pipecoverer and insulator, received disability compensation for seven years prior to his death in 1962. Extensive physical examinations and autopsy reports leave no doubt his death was due to asbestosis. He worked mostly on farms and in restaurants before his employment in the shipyard and denied any previous employment in a dusty trade.

Breathing asbestos fibers, usually over a period exceeding 10 years, causes this insidious industrial disease. A non-productive cough and progressive shortness of

breath that can lead to disability are the most striking symptoms.

This report covers: (a) material used, (b) working environment, (c) fiber counts, (d) x-ray findings, (e) discussion, and (f) summary.

Material

Asbestos is a commercial name applied to several varieties of fibrous minerals. These varieties are two distinct mineral groups, serpentine and amphibole, that differ considerably in composition and physical properties. Chrysotile, the fibrous form of serpentine, comes from Canada and constitutes about 95% of the total world production of asbestos. It is a magnesium silicate with iron, nickel, manganese, or aluminum often replacing part of the magnesium. The fibrous form of amphibole has four principal varieties, amosite, anthophyllite, tremolite, and crocidolite. These four are

various silicates of iron, calcium, magnesium, and sodium.

The replacement of one element by another in varying proportions is a unique characteristic of asbestos causing a change in its physical properties. For example, machinery crushes chrysotile into fine soft silky-feeling fibers which are strong, flexible and can be woven into cloth. Amosite, which comes from South Africa, has long coarse fibers suitable for a blanket-type of insulation material. Amosite has been used in large quantities on naval ships since before World War II. Other than amosite, the amphibole mineral type of asbestos is weak and brittle.

Most authorities believe that all types of asbestos can cause asbestosis. Medical science has not conducted sufficient research to determine the possible different effects of the mineral or which variety is the most hazardous.

Employees in the insulation trade also use fiberglass, magnesia, diatomaceous earth, and other inert substances that can complicate air sampling and the exposure hazard. Shipboard insulators use about ten different types of insulation material containing different varieties and a varying quantity of asbestos. Table I gives a list of material used in shipboard insulation and its composition. The table also shows the percentage of time the employee works with the material and his exposure in millions of particles per cubic foot.

Working Environment

These employees, known as pipecoverers and insulators, face a potential exposure to asbestos fibers in the insulation shop and on board ship.

Employees in the shop make pads shaped like small pillows for easy installation and removal from shipboard fittings, control valves, and pipe joints. A bolt of asbestos cloth is on a roller at the end of the layout and cutting table. Directly over the bolt a water spray system allows water to dampen the cloth as an employee draws it on the table. The employee measures and marks the material into appropriate sizes and cuts it with a rotary electric hand cutter. Another worker then stitches the cloth on a power sewing machine and passes it to another table where fiberglass is cut to size and stuffed into the opening. Finally, an employee closes the pad by sewing, trims it with a power cutter, and attaches rings to aid in the installation aboard ship. The cloth remains damp during the work process making dust control methods relatively easy in the shop. General exhaust ventilation operates continually, assisted by large doors and windows allowing for cross-ventilation. Aboard ship pipecoverers and insulators perform a great variety of installations in most compartments, especially in the firerooms and enginerooms. These men wire insulation block and insulation pipe sections in position around machinery and pipe. They make the surface smooth first by mudding with 85% magnesia plaster and then wrapping with asbestos cloth glued in position with a fire retarding waterproof ad-

hesive. The amosite blanket, rarely used now, was generally used rather than preformed blocks and pipe sections until 1962. Employees apply rockwool mud to this amosite blanket followed by portland cement and asbestos cloth to form a smooth finish. They apply glass sheets to ventilation ducts and wrap it with fiberglass or asbestos cloth. These men wrap fiberglass around fittings, control valves, and pipe joints, then attach the pads from the shop into position.

During ship overhaul, repair, and remodernization, pipecoverers and insulators remove all the various types of insulation they have applied. As shown in Table I, this small portion of time spent in removing excessively dry insulation gives a high exposure to asbestos dust.

Adequate ventilation for pipecoverers and insulators is rarely possible with our present ventilating system, which consists of 3,600 cfm exhaust fans with connections for four 5-inch flexible ducts. These portable exhaust fans are usually placed on the main deck and flow at each exhaust-duct entrance varies from 800 to 1500 lfm depending on the work process. This present exhaust system designed especially for welding and burning work is not adequate for our pipecoverers and insulators because their work processes and work positions vary.

Dust control by use of water during shipboard work appears to be practical only during application of amosite, a material seldom applied in our shipyard because of the excessive dust it causes during removal. The best protection for these employees is to avoid careless creation of dusty conditions by the use of damp material when possible, and the wearing of dust respirators constantly.

Fiber Counts

There are no established figures for a maximum allowable concentration of asbestos fibers in pipe covering operations or for short duration massive exposures. Because study in a textile mill in 1938 found no cases of asbestosis where the count by impinger light field was below 5 mppcf, this figure became the recommended maximum allowable concentration. An asbestos operation in Canada has had no new cases of asbestosis in 15 years where the particle count is below 1 mppcf for dust below 10 microns. One U. S. industry uses 5 mppcf below 10 microns and 1 mppcf above 10 microns as their MAC.

Pathologists find fibers exceeding 400 microns in lungs during autopsy. These long fibers do not settle in air as rapidly as spherical particles. They are less than one micron in thickness and their needle-like form allows them to stand on end and work down into the lungs.

The Saranac Laboratory experiments by animal exposure to asbestos indicated that asbestosis is a mechanical rather than a chemical action. The researchers also considered fibers greater than 10 microns the most harmful. This is not in agreement with recent

TABLE I

Materials and Exposures in Shipboard Insulation Jobs

Material (Used aboard ship by pipecoverers and insulators)	Percentage of working time aboard ship (with each material)	Exposure Concentrations (length of exposure time varies from minutes to hours)		
		particle range in microns	fiber range in microns	
		2-5 mppcf	5-10 mppcf	3-60 mppcf
1. 100% Amosite asbestos blanket				
Installing				
Removing	rarely			
2. 85% Magnesia and 15% amosite asbestos blocks and pipe sections	3.0	1.4-3.0	1.6-2.0	0.5-8.0
Installing				
Removing	38.0	1.4-6.0	0.1-0.4	0.1-1.8
3. Calcium silicate and 10% amosite asbestos blocks and pipe sections	1.5	0.8-10	0.7-2.0	tr.-1-2
Installing				
Removing	42.0	0.9-2.8	0.2-3.0	trace
4. 100% Chrysotile asbestos filler and binder				
Installing	2.0	0.4-1.7	0.4-0.9	trace
Removing	1.5	mixed as cement	and applied wet	
5. 15% Chrysotile and 85% rockwool filler and binder	0.5	0.9-4.9	0.9-1.6	trace
Installing				
Removing	1.5	mixed as cement	and applied wet	
6. 80-95% Chrysotile asbestos cloth	0.5	0.8-4.7	0.7-1.7	trace
Installing				
Removing	8.0	0.3-1.8	0.2-1.4	trace
7. Fiberglass				
Installing	0.5	0.2-1.9	0.5-2.0	trace
Removing	1.0			
	rarely			

studies in South Africa where authorities consider fibers less than 5 microns the most harmful.

Dust counts, taken with the Bausch and Lomb Dust Counter, appear in Table 1. The low counts on sampling do not appear to give an adequate indication of the actual hazard. During sawing of blocks and pipe sections and removal of old insulation, the work environment appears extremely dusty. Respirator filters often clog after an hour's work removing insulation. Fibers from 3 to 60 microns in length received special attention during this study. If fibers were present but count revealed less than one mppcf, they appear in Table I as a trace.

X-ray Findings

It is common practice for industrial hygienists to use information from periodic physicals to assure themselves that exposure controls are adequate. X-ray examinations on new employees in asbestos are not of value for this assurance; on the contrary, this information can be extremely misleading as it usually takes a minimum of seven years exposure for cases of asbestosis to develop. It also appears that some people are susceptible while others escape harm during the same exposure.

A medical team surveyed five shipyards in 1945 to investigate the health hazard due to insulation work. Only three cases of asbestosis appeared in 1074 x-ray examinations. These three employees had worked in asbestos material for more than 20 years. Insulation material and work methods have remained essentially the same since that study. The greatest change, started right after the war, is the removal of insulation during overhaul and repair. Many of our employees now have over 20 years in the insulation trade in contrast to the survey in 1945 where only 51 of the 1074 employees had over 10 years experience in insulation work.

Discussion

The world's consumption of asbestos has increased from 500,000 tons in 1942 to 2,400,000 tons in 1961. Recent studies recognize asbestosis as a serious health hazard. Asbestos exposure during shipboard insulation differs from exposure in mining and manufacturing processes of this material. In these industries employees usually continue at one job with the same material and their exposure is relatively constant. This is not true for shipboard insulation where the pipecoverers' and insulators' work location, work position, and material constantly change. Under these conditions it is impos-

sible to determine the exposure of the employee without spending hours in observation and sampling. Samples taken as in Table I are only bases for discussion concerning their exposure.

We do not know whether our cases of asbestosis came from massive exposure during removal of old insulation or from many years of exposure by susceptible individuals during all types of insulation work.

Summary

The Long Beach Naval Shipyard has several men on disability compensation due to asbestosis; there was one death from asbestosis. Many of these employees have more than 20 years experience as pipecoverers and insulators working primarily aboard ship.

Asbestos exposure during ship overhaul and repair varies extensively giving an entirely different problem from exposure in mining and manufacturing operations. The maximum allowable concentration for pipe covering operations or for short duration massive exposures is unknown. There still remains a difference of opinion among medical authorities on a MAC and the effects of long-fiber and short-fiber asbestos. Chest x-ray examinations of employees exposed to asbestos can be misleading as it usually takes a minimum of seven years for cases of asbestosis to develop. Shipboard pipecovering and insulation during overhaul and repair is a hazardous trade. Employees in this trade should wear respirators when exposed to dry insulation material containing asbestos.



RESERVE SECTION

CAPTAIN KENNETH W. SCHENCK MC USNR RETIREES AS DIRECTOR OF NAVAL RESERVE DIVISION, BUMED

Ceremonies were held in the Office of the Surgeon General on 31 August 1964 honoring CAPT Schenck upon his transfer to the Temporary Disability Retired List.

He was cited by RADM R. B. Brown MC USN, Acting Surgeon General, for his extreme loyalty to the service and patriotism to his country in pursuing a career in the Navy and particularly was cited for his highly commendable performance during the last two years while he served as Director of the Naval Reserve Division in the Bureau of Medicine and Surgery.

CAPTAIN CURTISS CUMMINGS MC USNR TO REPORT AS DIRECTOR, NAVAL RESERVE DIVISION

CAPT Curtiss Cummings has recently been ordered to active duty to report by 1 November 1964 to the Bureau of Medicine and Surgery for duty as Director, Naval Reserve Division. CAPT Cummings enrolled in Princeton University in 1935 and received an A. B. from that school in 1939. He then attended Columbia University College of Physicians and Surgeons, and received his degree in medicine in 1943. He has been affiliated with the Naval Reserve since his third year as a medical student.

Upon completing an internship at Methodist Hospital, Brooklyn, New York, he reported for active duty as a



CAPTAIN KENNETH W. SCHENCK MC USNR
*Official U. S. Navy Photograph, Navy Photography
Center, NAS, Anacostia, D. C.*

LT (Junior Grade) Medical Corps, at the Naval Hospital, St. Albans, Long Island, New York. After a brief stay there, LT JG Cummings departed for the Amphibious Training Base, Solomon, MD., for duty with Landing Crafts Groups under Commander Amphibious Training, Atlantic Fleet. He served as group Medical Officer for Commanders LCI (L), Groups Seventeen and Fifteen until October 1945 at which time he was ordered to the Receiving Station Naval Base, Philadelphia, Pennsylvania, and released to inactive duty on 6 November 1945. Dr. Cummings completed postgraduate training in medicine and pediatrics at Nassau Hospital, Mineola, New York, during 1946-47

and later affiliated with that hospital. He has been in general practice in Nassau County since. He is a member of the Nassau County and New York State Medical Societies and serves in the Military Affairs Section of the latter. In addition, he holds membership in the Reserve Officers Association and the Association of Military Surgeons.

Since his release, Dr. Cummings has continued active participation in the Medical Department Reserve Program, his latest position being that of Commanding Officer of the Naval Reserve Hospital Corps Division 3-1, at St. Albans, New York. During this time, he has progressively advanced to the rank of Captain, to rank from 1 July 1963.



AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY

The next scheduled Part I (written) examination of this Board will be held at various examining centers in the United States, Canada, and military bases outside of the continental United States on Friday, December 11, 1964 at 2:00 P. M. Candidates eligible to take this examination will be notified on or about November the first where to appear for examination.

Beginning in 1965, the Part I (written) examination will be given early in July. All candidates (including new and reopened applicants as well as re-examinees) having completed an approved and progressive residency program on or before July, 1965 will be eligible to request admission to the Part I examination in 1965.

The 1964 Bulletin containing detailed information on the requirements and procedure of application relative to the new schedule of examinations beginning in 1965 is now available for mail distribution.

Bulletins may be obtained by writing to the office of the Secretary,—Clyde L. Randall MD, American Board of Obstetrics and Gynecology, 100 Meadow Road, Buffalo, New York 14216. Diplomates of this Board are requested to inform the Secretary's office of any change in address.

MISCELLANY

APPLICATIONS FOR INSERVICE RESIDENCY TRAINING 1965-1966

Interested applicants for inservice residency training, should carefully review BUMEDINST 1520. 10B for information concerning programs offered and procedure for submitting applications.

Deadline for submission for inservice training programs to begin in the summer of 1965 is 15 November 1964. Candidates will be notified of selection or non-selection by 15 December 1964. Applications, submitted via chain of command, should be for the full training program as outlined in BUMEDINST 1520. 10B.

Combined programs, such as in Neurosurgery, should be requested for the inservice portion first to begin in the summer of 1965, with the civilian portion to follow in a civilian institution to be determined.

Applicants are encouraged to list at least three choices of naval hospitals for location of training if such choices exist in the chosen specialty, and may feel free to write the chiefs of services for details of the training offered, if desired.

Early submission of applications is recommended to assure processing through chain of command and receipt in BuMed prior to the 15 November 1964 deadline.—Training Branch, Professional Division, BuMed.

THE COMPLETE NIGHTMARE

Memories. Some of them pleasant, if intangible. Recalled to us by little things—the smell of pineapple on an offshore breeze, the glint of sunlight on a calm sea, the taste of salt spray on the air . . .

Some are preserved in mementos. Souvenirs of voyages past. Photographs. Personal memories: the stuff of which a life is made. And there are official memories, the stuff of which history is made. Libraries, neatly ordered files, archives.

And there are other official memories—the stuff of which nightmares are made. Strewn about every ship and station, packed into every available nook and cranny: the remains of Paperwork Past. Not a dimly remembered ghost, but an ever-present bulk of outdated publications, instructions, check-off lists of check-off lists.

Is it nostalgia for World War II aircraft that keeps the old recognition manuals around? Is it a sense of "continuity with the past" that makes some ships hang onto OpOrders for exercises long since ended? Is it insecurity that makes some ships preserve a three-foot high stack of old admin and ORI inspection lists and forms?

More than likely, it is an unwillingness to discriminate between what is useful, and what may, under some improbable set of circumstances, be useful. Or the nagging fear that some check-off list will call upon the command to produce a complete set of repair manuals for all equipment removed from the ship within the last ten years.

And the problem rests not so much with each individual command, as it does with a system that, over the years, has come to lead us into such a way of thinking. A system that has never been defined or organized, but has grown unaided and uncoordinated. A system based on suspicion; a system that does not accept "results" as proof of accomplishment but requires excessive and oppressive documentation of each step along the way. A system that has become a monster: the paperwork monster, that today threatens to devour the very thing it was created to protect—the combat readiness of the Fleet.

But now, we have a solution. Or, rather, a way to find the thousand solutions that are needed. It is called Project SCRAP—the Selective Curtailment of Reports and Paperwork. Conceived by Under Secretary of the Navy Paul B. Fay, it is headed by the Naval Inspector General and is fully supported by the Secretary of the Navy and the Chief of Naval Operations. So fully supported, in fact, that it has been given a special "SECNAV Designated Project" status. This puts it in the same league as the POLARIS program and the Surface Missile System program, the only other so designated projects in the Navy. What is boils down to is this: we are cutting the red tape on a project specifically created to cut the red tape.

SCRAP has one primary goal. To improve combat readiness by the "prompt reduction of paperwork in the operating forces to that required by a need to know or need to act." And by "the identification and elimination of least essential administrative practices and the development of policies and procedures which will effectively monitor and control the flow of paperwork on a permanent basis." At the same time that readiness is being increased, it is obvious that there are also going to be large savings in money and manpower.

SCRAP is not going to choke off those paperwork procedures that are necessary to orderly and efficient administration or operations, not set every command adrift without guidelines or guidance. "Selective Curtailment" are the important words.

And, while SCRAP is being coordinated at the highest levels of the Navy, it needs the interest and cooperation of every man and woman—officer, enlisted and civilian—connected with the Navy. And it is seeking ideas, comments, suggestions—official and unofficial—from every one of them—about every phase of paperwork: logs, reports, books, files, manuals, newspapers, plans, orders, procedures, instructions, notices. The monster to be found on every ship and station that is crowding men and equipment off the ships with sheer bulk; the care and feeding of which are crowding the useful working hours out of the day.

You will be hearing a lot about SCRAP in the months to come. You may not read too much about it, though—NAVNEWS is one project that will be conducted "with a minimum of paperwork." And SCRAP would like to be hearing from you. Help prevent the memories of today from becoming the nightmares of tomorrow.

—NAVNEWS 15 July 1964.

ASSOCIATION OF MILITARY SURGEONS TO CONVENE OCTOBER 20-22

Washington, D. C. Modern man's changing living environment—from capsules on the bottom of the sea to capsules floating in space—will draw the attention of the nation's top scientific and medical personnel during the 71st Annual Meeting of the Association of Military Surgeons of the United States scheduled for October 20 thru 22, 1964 in Washington, D. C. The theme of the Meeting is "Military Progress Through Scientific Achievement".

Registration for the Meeting, which will be held at the Sheraton-Park Hotel, begins on October 19. General Chairman of the event is Brigadier General Joe M. Blumberg MC USA, Director of the Armed Forces Institute of Pathology in Washington.

Association President, Col Robert C. Kimberly MC, Maryland Army National Guard, will preside at the opening session of the meeting. The keynoter is Dr. Robert M. Zollinger, of the University Hospital, Columbus, Ohio and President of the Society of Medical Consultants to the Armed Forces. Also speaking during the opening sessions will be Lt Gen Lewis B. Hershey,

Director, Selective Service System; Dr. Shirley C. Fisk, Deputy Assistant Secretary of Defense; Lt Gen Leonard D. Heaton, Surgeon General, USA; RADM Edward C. Kenney, Surgeon General, USN; Maj Gen Richard L. Bohannon, Surgeon General, USAF; Dr. Luther L. Terry, Surgeon General, USPHS; and Dr. Joseph H. McNinch, Chief Medical Director of the VA.

The following topics will be presented and discussed: (1) symposium on progress in medicine in relation to environmental challenges created by man's exploration of the unknown; (2) clinical studies on acute mountain sickness; (3) psychological aspects of Antarctic living. Another feature of the symposium will be a presentation on manned underwater habitations by CAPT G. F. Bond of the U. S. Naval Medical Research Laboratory at the New London, Conn, Submarine Medical Center.

Awards for the most outstanding contributions to military medicine will be presented in ceremonies scheduled for October 21. Among the prizes to be awarded are: The Andrew Craigie Award, Federal Nursing Service Award, Founder's Medal, Gorgas Medal, John Shaw Billings Award, Major Louis Livingston Seaman Prize, McLester Award, Sir Henry Wellcome Medal and Prize, Stitt Award and the Sustaining Membership Award.

Following the Awards, Dr. Edward R. Annis, immediate past-president of the AMA, will give the Sustaining Membership lecture. His address will be titled "The World's Greatest Arsenal."

Meetings of the various sections of the Association will be held October 21. Holding their annual meetings in separate sessions during the convention will be the sections on dentistry, veterinary medicine, pharmacy, Medical Service Corps, Nurse Corps and Medical Specialist Corps. Each section will hold scientific sessions and annual business meetings.

Medical problems caused by the increasing military involvement in the Far East will be discussed by a panel of experts during a symposium scheduled for the final day of the convention. Symposium speakers will discuss infectious hepatitis in Korea, leptospirosis in Malay and new developments in malaria research. Moderator will be Col W. D. Tigertt MC USA, Commandant and Director of the Walter Reed Army Institute of Research.

Another panel discussion of importance to the medical and pharmaceutical world is scheduled for the Sustaining Members' meeting. All members of the Intra-Governmental Procurement Advisory Council on Drugs (IPAD) will present views and answer questions from the audience.

Also included in the convention program is a broad study of medical advances resulting from developments in modern weaponry. During the session papers will be presented on subjects ranging from nutrition for national defense to a bioastronautic report on X-15 flights. Toxicologic aspects of missiles and nuclear submarine warfare, dynamic function testing in aerospace crewmen and naval medical research in relation to seapower will also be discussed.

Other highlights during the scientific sessions include a study of the medical aspects of operations of the Army Special Forces and a survey of inter-agency and inter-governmental cooperation in the investigation of aircraft accidents.

A full schedule of social events for the ladies, including guided tours of the Washington area, and a fashion show and luncheon is also on the program.

The convention will officially close on the afternoon of the last day with the annual business meeting of the Association, followed in the evening by the annual banquet held in recognition of the International Delegates and the award winners and their sponsors.

Organized in 1891 and incorporated by Congress in 1903, the Association now has some 6,000 members. Membership is drawn from the medical services of the U. S. Armed Forces and their medical Reserves, the U. S. Public Health Service, the Veterans Administration, the National Guard of the various States, and the military services of other nations.

Annual Dinner reservations for the convention should be made by September 20 with the Association of Military Surgeons of the U. S., 1500 Massachusetts Avenue, N. W., Washington, D. C. 20005.

ANNUAL MEETING OF THE AMERICAN PUBLIC HEALTH ASSN.

Progress and problems in man's global war against disease will be discussed by authorities from this country and abroad during the Association's 92nd annual meeting in New York City, October 5-9.

The New York Hilton will be headquarters for the meeting, but some scientific sessions will be combined with field trips "to give public health workers a unique opportunity to explore the many pioneering programs now underway in New York and the metropolitan area," according to Dr. Berwyn F. Mattison, executive director of the Association.

Highlights of the sessions will include presentation of major annual awards in public health—the fourth annual Bronfman Prizes for Public Health Achievement, established by the Association with a grant from the Samuel Bronfman Foundation, Inc., to honor "outstanding current creative work leading directly to improved health for large numbers of people," and the Sedgwick Memorial Medal for distinguished service to public health.

The program for the APHA sessions, Dr. Mattison said, will include presentation of scientific papers covering latest research and program developments in the fields of specialization covered by the Association's fourteen sections—dental health, engineering and sanitation, epidemiology, food and nutrition, health officers, laboratory, maternal and child health, medical care, mental health, occupational health, public health education, public health nursing, school health and statistics.

Population problems and poverty and health are the subjects of two general sessions.

The American Public Health Association, with headquarters at 1790 Broadway, New York 19, is the largest professional society of public health personnel in the Western Hemisphere, with more than 14,000 members. Officers, in addition to Dr. Mattison, are president, Dr. John D. Porterfield, statewide coordinator of health and medical affairs at the University of California, Berkeley, and former Deputy Surgeon General of the

U. S. Public Health Service; president-elect, Dwight F. Metzler of Lawrence, Kansas, executive secretary of the Kansas State Water Resources Board; immediate past president, Dr. J. W. R. Norton, state health director of North Carolina; treasurer, Dr. D. John Lauer, medical director of International Telephone and Telegraph Corporation, New York; speaker of the council, Dr. Leroy E. Burney, vice president of Temple University, Philadelphia, and former Surgeon General, U. S. Public Health Service; and chairman of the executive board, Dr. Wilson T. Sowder, state health officer of Florida.

Health aspects of Metropolitan Planning. Most countries today are faced with problems created by population growth and the rapidly increasing concentration of people, production, and services in towns, cities, and metropolitan areas. For public health agencies, these problems—and especially those relating to environmental health are proving to be highly complex in variety and scope, and difficult of solution. They include inadequate water supplies and waste disposal facilities, unhygienic and badly sited housing, air and water pollution.

A WHO Expert Committee on Health and Sanitary Aspects of Metropolitan Planning, Housing and Industrialization met in Geneva from 23 to 29 June 1964. Among the topics discussed were planning criteria and tools, housing, open and recreational areas, water supply, waste disposal and drainage, air pollution, the control of radiation, and vector control. Political, social, economic, and legal factors were also discussed.—WHO Chronicle 18(7): 274, July 1964.

Relatively little attention has been paid to the health hazards that may arise from the increasing introduction of synthetic organic chemicals—new plastics and plasticizers, detergents and solvents, additives to foods, fuels, or alloys, and pesticides—into the human environment, and particularly into surface and underground water supplies. WHO is now laying the foundations for a programme that may eventually lead to the establishment of permissible levels for chemical contaminants.—WHO Chronicle 18(4): 141, April 1964.

Teaching of Nursing in British Honduras. The Government of British Honduras and the Pan American Sanitary Bureau (PASB), which acts as the WHO Regional Office for the Americas, are co-operating in a project for the improvement of nursing education. In addition to revision of the basic curriculum of the School of Nursing in Belize, the project will include a general study of nursing needs and staffing.

PASB will cover the cost of laboratory equipment and teaching material, award fellowships for the train-

ing of nursing staff abroad, and provide a nursing consultant. Local expenses will be covered by the Government of British Honduras.—WHO Chronicle 18(7): 274, July 1964.

Conservation Workers Leptospirosis Target. Conservation work in Missouri has been added to the category of jobs in which leptospirosis is a hazard as a result of studies reported by Dr. Herbert S. Goldberg, professor of microbiology, Dr. D. C. Blenden, assistant professor of veterinarian bacteriology, and Dr. J. T. Logue, clinical assistant professor of medicine, University of Missouri.

Eighty-one blood samples taken from personnel of the Missouri Conservation Commission showed a rate of infection that was as high if not higher than the rate for veterinarians, farmers, packinghouse workers, and meat inspectors.

Irradiated Foods. The use of ionizing radiation for the preservation of food for human consumption has been under development for some years, and in a few countries the process is being tried out on a small scale.

The health aspects of this method of preservation were discussed by a joint FAO/IAEA/WHO Expert Committee on the Technical Basis for Legislation on Irradiated Foods, which met in Rome from 21 to 28 April 1964. The Committee considered the possible hazards to consumers that might result from irradiation of the foods themselves and also from the influence of ionizing radiation on the micro-organisms present in the foods.

The Committee advised on special requirements for testing the wholesomeness of irradiated foods in order to provide a common technical basis for the drafting of legislation.—WHO Chronicle 18(6): 230, June 1964. It is still commonly thought that to have had a heart attack or to be suffering from any cardiovascular disorder is to be mortally ill. In actual fact it is becoming increasingly possible to halt, reverse, or cure specific cardiac impairments.—WHO Chronicle 18 (6): 216, July 1964.

Inquiry Into Home Accidents. Accidents are today the leading cause of death among children and young adults in many developed countries. The majority of accidents, it is believed, occur in the home. In the Netherlands, for example, more than half of all accidents to females are home accidents. Unfortunately, information on such accidents is in general scarce, and studies of their immediate causes are still rudimentary.

As part of a programme to obtain knowledge about accidents of this type with a view to their prevention, a Meeting on the Epidemiology of Home Accidents was held in Copenhagen by the WHO Regional Office for Europe from 17 to 20 March 1964.

The participants were epidemiologists, statisticians, and public health administrators, engaged in epidemiological studies of home accidents or in preventive work based on such studies. Invitations were limited to countries in which deaths caused by accidents (other than those involving transport) are tabulated by place of occurrence.—WHO Chronicle 18(6): June 1964.

Schools of Public Health in Latin America. At the invitation of the Government of Brazil, the Pan American Sanitary Bureau (PASB), which acts as the WHO Regional Office for the Americas, held the Third Conference of Deans of Schools of Public Health in Latin America, at Sierra Negra, Sao Paulo, Brazil, from 22 to 28 September 1963. The main aim of the Conference was to study the teaching of health administration in the schools and its inter-relation with the social and behavioural sciences. Questions of educational method and public health planning were also discussed. The Conference was attended by 25 participants from Argentina, Brazil, Colombia, Chile, Mexico, Venezuela, and Puerto Rico, and six observers from various educational institutes in the Americas, as well as members of the PASB staff. The two earlier conferences in the series were held in Mexico in 1959 and in Venezuela in 1961.—WHO Chronicle 18(6): 232, June 1964.

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